Introduction

The U.S. Environmental Protection Agency (EPA) is requesting facility data and information to inform the Technology Review project for 40 CFR Sterilization source category. The purpose of this survey is to enable facilities to submit accurate facility information. For more detailed instructi the Section 114 transmittal letter at: https://www.epa.gov/stationary-sources-air-pollution/ethylene-oxide-emissions-standards-sterilization-fa

Instructions

This survey contains sheets and data fields shaded in different colors. As a general rule:

Sheets and fields shaded in blue indicate that reporters shall provide inputs according to the corresponding instructions
Sheets and fields shaded in gold contain instructions and supporting information that help reporters with this survey
Fields shaded in gray indicate that these either do not need to be filled out or will be automatically filled out based on reporter's inputs in relevant fields shaded in red by reporter indicate that these fields contain confidential business information (CBI), and relevant data needs special handle

This survey contains the following tabs (You may click on the tab names below to visit each individual tab):

Introduction (this tab)	Introduction and instructions for completing and submitting this survey
Terms (link)	Definitions or explanations of certain technical terms that are mentioned throughout this survey
Facility Details (link)	Information about facility registration, ownership, general characteristics, facility-level data, legal docu
Room Area (link)	Characteristics, inventory of components and control of individual room areas where EtO is used or em
EtO & EG Storage (link)	Questions regarding EtO storage in drums and containers, and ethylene glycol (EG) tanks
Sterilizer Chambers (link)	Operation, monitoring and control characteristics of sterilizer chambers
Aeration (link)	Details of aeration equipment
APCD Summary (link)	Information about all air pollution control devices operated by facility
APCD Details (link)	Details regarding air pollution control devices such as scrubbers, catalytic oxidizers, thermal oxidizers, a
EtO Monitoring (link)	Information about workspace monitoring, personal monitoring, room monitoring, etc. conducted by fa
Miscellaneous (link)	Questions regarding facility's wastewater treatment and other items of EtO commercial sterilization or
Additional Info (link)	Use this tab if you need extra space to provide any additional information requested within this survey
Attachments (link)	Designated fields for reporter to attach documents requested throughout this survey
Certification (link)	Reporter's information and certification for completing and submitting this survey

If you need extra space to provide any additional information within this survey, use the space provided in Section M in Additional Info tab

Submitting Completed Surveys

There are two ways to submit your survey that contains no CBI information:

(1) Save the completed survey on a CD, DVD or thumb drive, and mail it to:

U.S. Environmental Protection Agency

Office of Air Quality Planning and Standards

U.S. EPA Mailroom (E143-05)

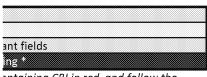
Attn: Mr. Jonathan Witt

(2) Email to Mr. Jonathan Witt at: Witt.Jon@epa.gov

To submit your survey that does contain CBI information, see the Instructions Document to the Section 114 transmittal letter

^{*} If any information you entered contains CBI, select "Yes" in the designated cell (Cell N2) in each tab throughout this survey, shade the fields of instructions specified in the Instructions Document

part 63, subpart O, Commercial ons, see the Instructions Document to <u>cilities</u> (click to visit).



ontaining CBI in red, and follow the

ments, etc.
itted
ınd others
cility
eration

Click here to return to Introduction tab

1. Definitions

Term	Definition
Accelerated aeration	Aeration conducted in a heated aeration chamber or cell, not an aeration room, combined wi
Aeration cell/chamber	Any vessel that is used to facilitate off-gassing of ethylene oxide at a sterilization facility. If si
Aeration room	Any vessel or room that is used to facilitate off-gassing of ethylene oxide at a sterilization fac
Aeration room vent (ARV)	The point(s) through which the evacuation of ethylene oxide-laden air from an aeration room
Balancer/abator system	An air pollution control device (APCD) that consists of a combination of a water balancer and
Cascading air	Ventilation air removed from one room area or process, with a lower EtO concentration, is ve
Chamber exhaust vent (CEV)	The point(s) through which ethylene oxide-laden gas is removed from the sterilization chamb
Combination-chamber sterilizer	Any enclosed vessel in which both the sterilization process and the aeration process occur wi
Dwell period	The length of time that the product is exposed to ethylene oxide in sterilizer chamber for the
Engineering test	A test that measures the amount of pollutants being emitted, demonstrates the capture effic
Ethylene oxide (EtO) service	A piece of equipment either contains or contacts ethylene oxide as a liquid or gas at any conc
Fugitive emissions	Emissions (of ethylene oxide) which are not routed through the existing control equipment
Natural draft opening (NDO)	Any permanent opening in the enclosure that remains open during operation of the facility a
Performance test	A test that measures the amount of pollutants being emitted, demonstrates the capture effic
Research and laboratory facility	Any stationary source whose primary purpose is to conduct research and development into n
Single-item sterilizer	Any enclosed vessel in which sealed pouches containing product and ethylene oxide gas for t
Sterilization chamber vent (SCV)	The point (prior to vacuum pump) through which the evacuation of ethylene oxide from the
Sterilization facility	Any stationary source where ethylene oxide is used in the sterilization or fumigation of mater
Sterilization operation	Any time when ethylene oxide is removed from the sterilization chamber through the sterilization
Sterilizer chamber	Any enclosed vessel or room that is filled with ethylene oxide gas, or an ethylene oxide/inert

2. Acronyms

Acronym	Term	Acronym	Term
APCD	air pollution control device	ID	identifier
ARV	Aeration room vent	Aeration room vent in. H2O	
CAA	Clean Air Act	kWh	kilowatt hour
CBI	Confidential business information	LEL	lower explosive limit
CEMS	Continuous emissions monitoring system	mg/L	milligrams per liter
CEV	Chamber exhaust vent	NAICS	North American Industrial Classific
cfm	Cubic feet per minute	NDO	natural draft opening
CFR	Code of Federal Regulations	ppmv	parts per million, volun
EG	ethylene glycol	psig	pressure per square inch, į
EIS	Emission Inventory System	QA	quality assurance
EPA	Environmental Protection Agency	QC	quality control
EtO	ethylene oxide	R&D	research and developme
ICR	information collection request	SCV	sterilization chamber ve

th: (1) use of ngle-item ility. If single-item 1 occurs a catalytic oxidizer ented as the input er during chamber thin the same purpose of iency, or entration nd is not connected iency, or ew processes and he purpose of sterilizer chamber rials ation chamber vent gas mixture, for the

atio	n Syst	em	
าe			
gaug	e		
ent			
•nt			

A. Facility Details

Table 1. Facility Information

Field #	A-1	A-2	A-3	A-4
Data	Primary NAICS	EIS ID	Facility name	Facility address
	code			
Instruction	Enter the primary	Enter EIS ID for the	Enter facility name	Enter the street address of facility
	NAICS code for the	facility		verified by U.S. Postal Service (USPS).
	facility *			Do <u>not</u> include P.O. box in this field
Response	339113		Midwest Sterilization Corporation	12010 General Milton Drive

^{*} For assistance in determining your facility's NAICS code, see the website for the North American Industry Classification System (NAICS), mai

Table 2. Parent Company Information

Field #	A-13	A-14	A-15	A-16
Data	Parent company	Parent company address	Parent company	Parent company
	F.4.		city	state
Instruction	Enter parent company name	Enter the street address of parent company verified by U.S. Postal	Enter parent company city	Select from the dropdown menu in
		Service (USPS). Do <u>not</u> include P.O.		this column
		box in this field		
Response	Midwest Sterilization Corporation	1204 Lenco Avenue	Jackson	МО

^{*} To determine the employee threshold for a small business, you may look up the small business size standard using six-digit NAICS codes. The §121.201, "What size standards has SBA identified by North American Industry Classification System codes?", table "Small Business Size Stand Website for the Small Business Administration: https://www.sba.gov/. (click to visit)

Table 3. Facility Documents

Field #	A-21	A-22	A-23
Data	Facility diagrams	Process flow diagrams	Most recent air permit(s)
Instruction	Provide diagrams of your facility	Provide process flow diagrams of the	Provide the most recent air permit(s)

Table 4. Facility Buildings

Field #	A-26	A-27	A-	28	Δ	-29
Data	Building ID	Building height	Building	corner 1	Buildin	g corner 2
Instruction	Enter from permit description, if	Enter the (average) height of the	Enter the latitude of this building	Enter the longitude of this	Enter the latitude of this building	Enter the longitude of this building
	Otherwise, use a	building (feet)	corner. Specify to the <u>6th</u> decimal	Specify to the	corner. Specify to the <u>6th</u> decimal	corner. Specify to the <u>6th</u> decimal
	unique identifier for each building		point	6th decimal point	point	point

Code of Federal Regulations (CFR), part 121: https://www.ecfr.gov/cgi-bin/text-idx?SID=85df5b1185a8b127a9b324c6583f72c6&mc=true&nc



A-5	A-6	A-7	A-8	A-9	
Facility city	Facility state	Facility zip code	Phone number	Number of employees at facility	Operating status in current year
Enter facility city	dropdown menu in	Enter facility zip code verified by U.S. Postal Service (USPS)	phone number at	Select from the dropdown menu in this column. Full-time, part-time, and temporary employees should be counted equally	Select from the dropdown menu in this column
Laredo	TX	78045	(956)726-9175	101-250	Operating

ntained by the U.S. Census Bureau: https://www.census.gov/eos/www/naics/. (click to visit)

A-17	A-18	A-19	A-20
Parent company zip code	Phone number	Is parent company a small business?	Number of employees at parent company
company zip code verified by U.S.	Provide a contact phone number at the parent company	Select from the dropdown menu in this column. For more instructions, see the footnote below this table	Select from the dropdown menu in this column
63755	(573) 243-8456	Yes	≤ 250

e size standards used to define Small Businesses are provided in 13 CFR 121, Small Business Size Regulations. See dards by NAICS Industry", column "Size standards in number of employees".

ide=pt13.1.121&rgn=div5 . (click to visit)

A-24	A-25
Application documents for the most	Startup, shutdown and malfunction
Provide the application documents for	Provide the startup, shutdown and
Attach all requested documents in the	Attach all requested documents in the

	A-30 A-3 Building corner 3 Building corn		ner 4 (if any)	A-32 if any) Building corner 5 (if any)		A- Building cor
Enter the latitude	Enter the longitude	Enter the latitude	Enter the	Enter the latitude	Enter the	Enter the latitude
of this building	of this building	of this building	longitude of this	of this building	longitude of this	of this building
corner. Specify to	corner. Specify to	corner. Specify to	building corner.	corner. Specify to	building corner.	corner. Specify to
the <u>6th</u> decimal	the <u>6th</u> decimal	the <u>6th</u> decimal	Specify to the 6th	the <u>6th</u> decimal	Specify to the 6th	the <u>6th</u> decimal
point	point	point	decimal point	point	decimal point	point

A-10	A-11		A-12
Comments	Operating hours		Is there a plan to expand/modify/close this facility in the near future?
If you choose an option other than "operating" in the previous column, please add a brief comment in this column	operating hours on	operating hours on	Select from the dropdown menu in this column Provide a short explanation if you select from the dropdown menu in the left from the dropdown menu in the left from the dropdown menu in the left from the dropdown menu in the left from the left from the dropdown menu in the left from
	24.00	8760.00	No (skip to A-13)

33	A-34		A-35
ner 6 (if any)	Building co	rner 7 (if any)	Additional comments
Enter the longitude	Enter the latitude	Enter the	Enter any additional comments that you may have regarding
of this building	of this building	longitude of this	the information provided in this table about buildings and
corner. Specify to	corner. Specify to	building corner.	building corners
the <u>6th</u> decimal	the <u>6th</u> decimal	Specify to the <u>6th</u>	
point	point	decimal point	

Response	Warehouse	25.00	27.620473	-99.505343	27.619318	-99.504648
	Safe Cell	20.00	27.620734	-99.504746	27.620547	-99.504679

Table 5. Facility-level Data

Field #	A-	36	A-37	A-38
Data	EtO usage at your f	acility for the last 5	Materials sterilized at your facility	Percentage of total materials sterilized
Instruction	Enter <u>calendar year</u> in this column	Enter the corresponding EtO usage in this column (pounds)	List one type of material in each cell	Provide the approximate percentage of total materials sterilized with EtO based on volume of material throughput
Response	2019 2018 2017 2016 2015	1,288,931.00 1,144,226.00 1,122,232.00 1,112,723.00 961,420.00	Medical products Medical products Medical products Medical products Medical products	100.00%

27.619922	-99.503386	27.620778	-99.503712	27.620618	-99.504974	27.620781
27.620616	-99.504323	27.620756	-99.504335			

A-39	A-40		A-4	Α	
Percentage of total materials sterilized	Annual EtO stack e	missions of facility	Annual EtO fugit	Annual EtO fugitive emissions of	
Provide the approximate percentage of total materials sterilized with EtO based on dollar amount			in this column	Enter the <u>value</u> of annual EtO emissions in this column (pounds)	Provide calculations documentation for b and fugitive emission emission factors use annual EtO emission
100.00%	2019 2018 2017 2016 2015	16,293.00 14,631.00 14,374.00 14,264.00 17,362.00	2019 2018 2017 2016 2015	541.00 481.00 471.00 467.00 413.00	Attach all requester "Attachm

-99.504772		

42	A-	43	A-44		
for annual EtO	Average annual en	ergy cost of facility	Average annual growth rate in revenue		
oth stack emissions	Enter the dollar <u>amount</u> in this column	Specify the dollar <u>year</u> in this column		Specify the dollar <u>year</u> in this column	
d documents in the ents" lab					

B. Individual Room Area (All Areas where EtO is Used or Emitted)

Table 1. Characteristics of Room Areas

Field #	B-1	B-2	B-3
Data	Room area ID for all rooms and areas where EtO is used or emitted		Activities conducted in the ro
Instruction	Enter from permit description, if available. Otherwise, use a unique identifier for each room	Select from the dropdown menu in this column	Provide a brief explanation of the activiti each room
Response	EO Room	EtO storage	Stores and distributes ethylene oxide
	Chamber 1	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 2	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 3	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 4	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 5	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 6	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 7	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 8	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 9	Sterilizer room area	Sterilization chamber sterilizes product
	Chamber 10	Sterilizer room area	Sterilization chamber sterilizes product
	Vacuum Pump Room	Other (sterilizer vacuum pump area)	Some sterilizer vacuum pumps are locate
	Warehouse	Shipping or warehouse	Storage of sterilized product
	Emissions Room	APCD room	Contains the wetscrubber system
	Safe Cell	APCD room	Contains the safe cell system

Table 2. Natural Draft Openings (NDO)

Field #	B-1	
Data	Room area ID for all	Natural c
	rooms and areas	
	where EtO is used or	
	emitted	

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right → If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document

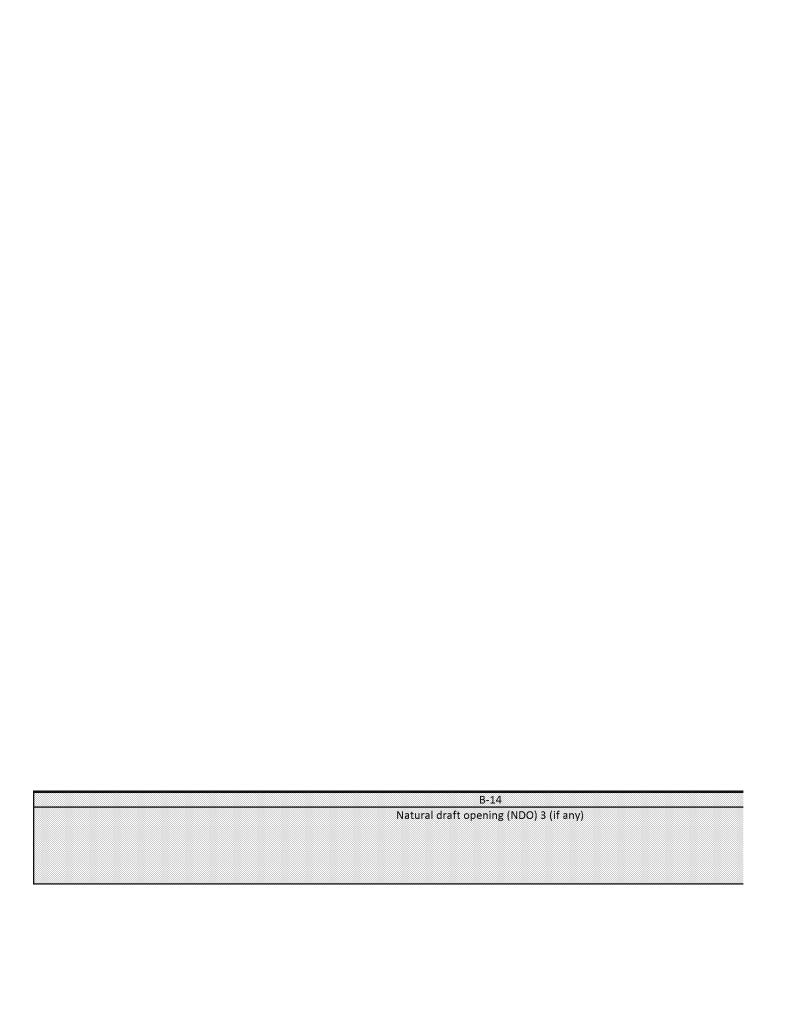
No

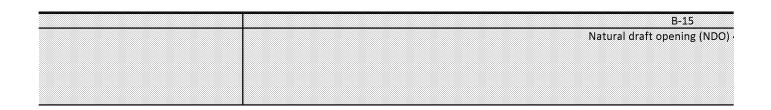
	B-4	B-5			B-7	
om area	Floor area (square feet)	Room height		Relative humidity		
		(feet)	Enter temperature set point or range for summer in this column (Fahrenheit)	Enter temperature set point or range for winter in this column (Fahrenheit)	Enter temperature set point or range for intermediate seasons in this column (Fahrenheit)	Enter average or range of relative humidity (percent)
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
	1062.00	21.50	95.00	74.00	84.50	33.00%
d here	1121.00	21.50	95.00	74.00	84.50	33.00%
	143500.00	25.00	95.00	74.00	84.50	33.00%
	1711.00	41.50	95.00	74.00	84.50	33.00%
	4200.00	20.00	95.00	74.00	84.50	33.00%

B-12		
Iraft opening (NDO) 1 (if any)		

	B-8	B-9	B-10	B-11
Pressure drop		Air flow (ventilation)	Air flow (conditioned)	Number of air changes per hour
Enter the pressure drop across room area (inch H2O)	Specify definition of pressure drop, or locations based on which pressure drop is measured (e.g., farthest point to control device inlet)	Enter average or range of ventilation air flow (actual cubic feet per minute, acfm)	Enter average or range of conditioned air flow (actual cubic feet per minute, acfm)	Enter average or range of number of air changes per hour
		6222		8.7
		2077		7.7
		2163		8.0
		1992		7.4
		2425		9.0
		1992		7.4
		2395		8.9
		1992		7.4
		1992		7.4
		2554		9.4
		3083		11.4
		15000		97.9
		12393		7.7
		1200		20.7
		10400		8.2

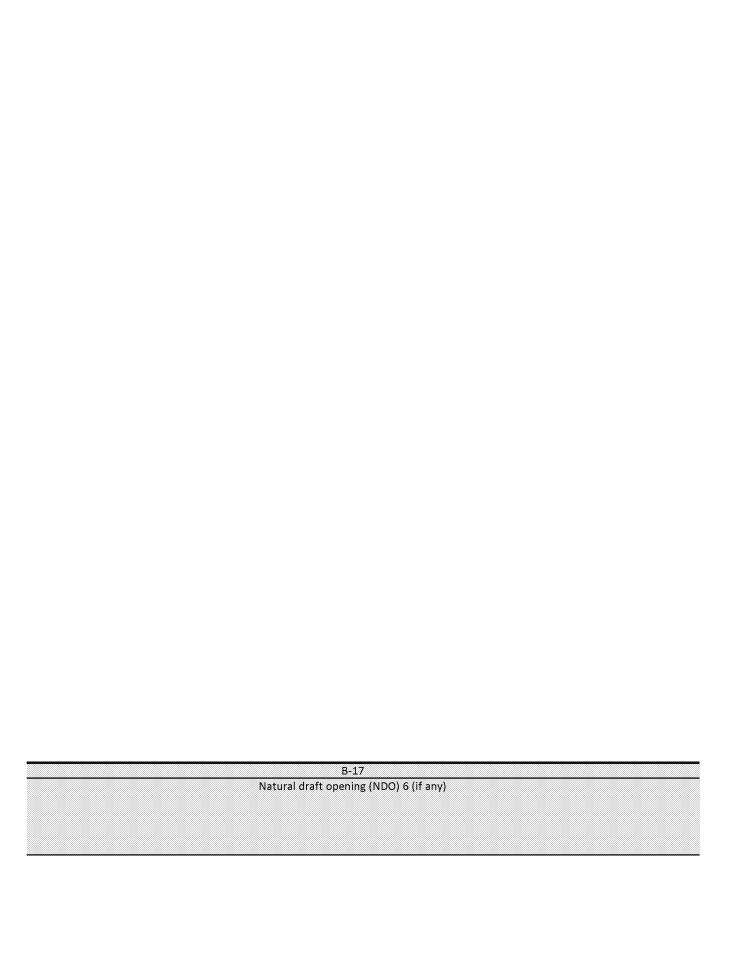
B-13	
Natural draft opening (NDO) 2 (if any)	

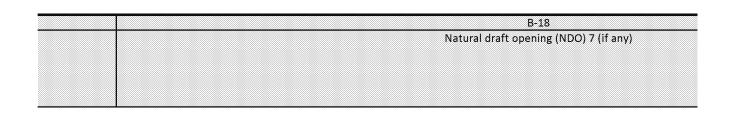


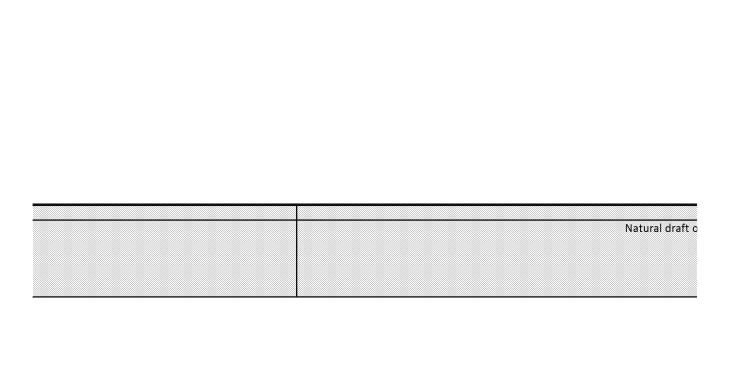


4 (if any)		

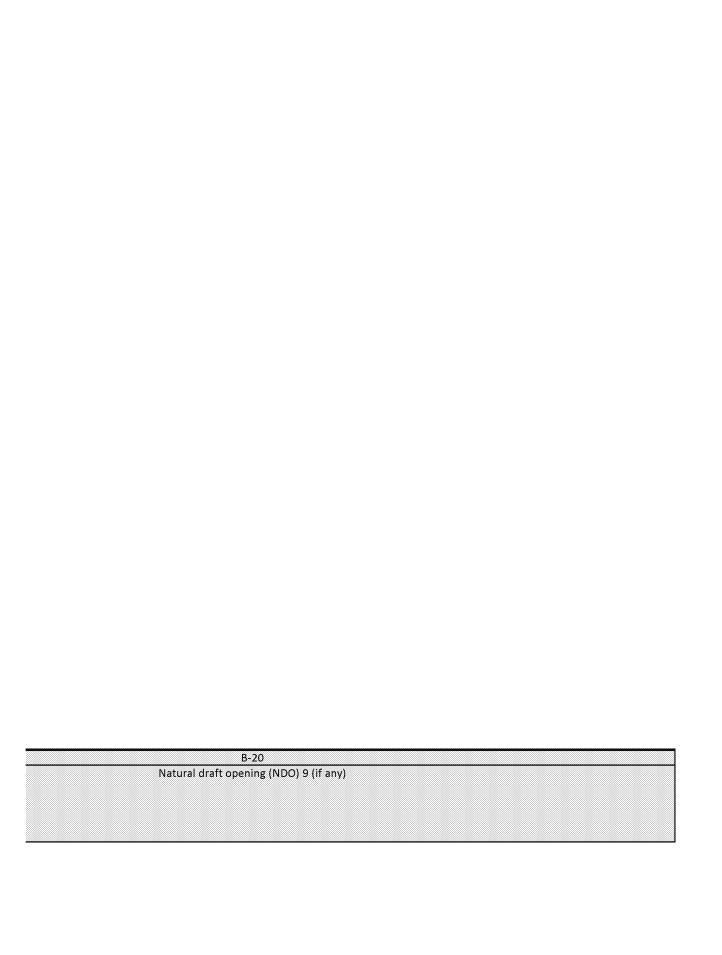
B-: Natural draft openi			

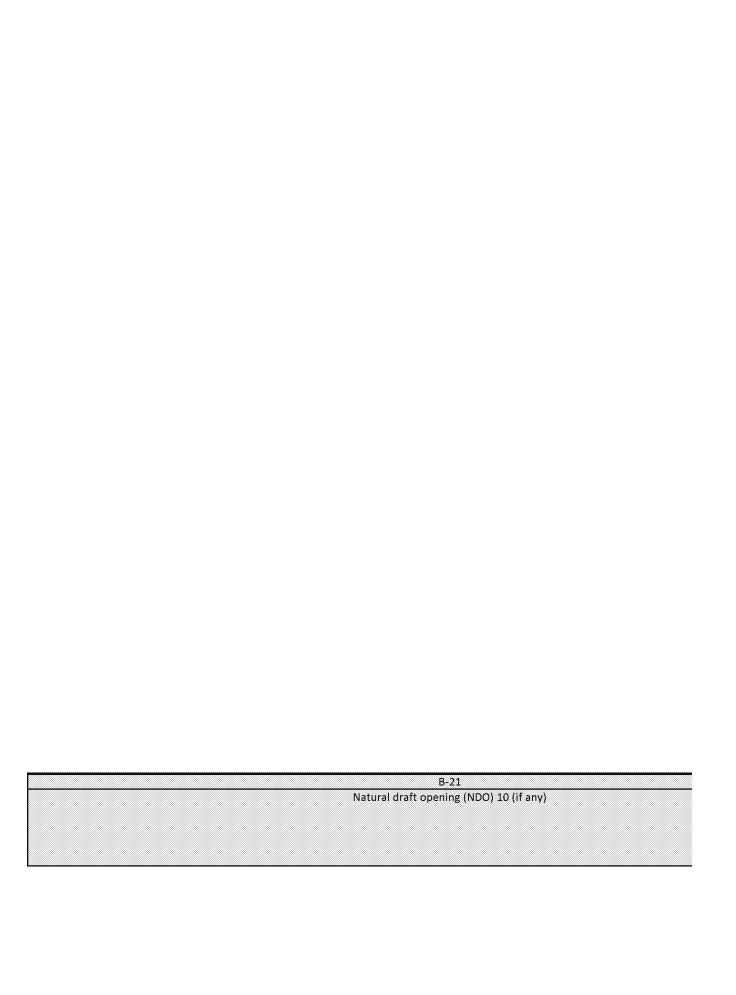


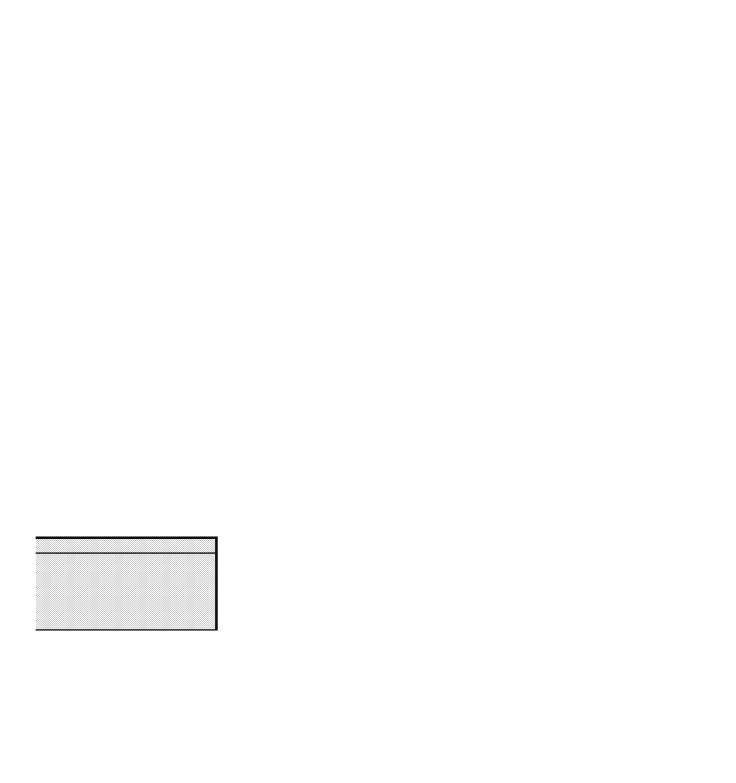




B-19			
pening (NDO) 8 (if any)			
		•	







Instruction	This column will be auto-populated based on your entries in the previous fields	NDO ID. Enter from permit description, if available. Otherwise, use a unique identifier for each NDO	Type. Select from the dropdown menu in this column	Orientation. Select from the dropdown menu in this column	Latitude. Specify to the <u>6th</u> decimal point
Response	EO Room	EO-BD-1	Window	Vertical	27.620865
	Chamber 1	CH1-BD-1	Window	Vertical	27.620618
	Chamber 2	CH2-BD-1	Window	Vertical	27.620538
	Chamber 3	CH3-BD-1	Window	Vertical	27.620629
	Chamber 4	CH4-BD-1	Window	Vertical	27.620490
	Chamber 5	CH5-BD-1	Window	Vertical	27.620629
	Chamber 6	CH6-BD-1	Window	Vertical	27.620741
	Chamber 7	CH7-BD-1	Window	Vertical	27.620756
	Chamber 8	CH8-BD-1	Window	Vertical	27.620788
	Chamber 9	CH9-BD-1	Window	Vertical	27.620811
	Chamber 10	CH10-BD-1	Window	Vertical	27.620640
	Vacuum Pump Room	VP-BD-1	Window	Vertical	27.620850
	Warehouse	WH-GH-1	Window	Horizontal	27.620316
	Emissions Room	EM-BD-1	Window	Vertical	27.620758
	Safe Cell	SC-ND-1	Window	Vertical	27.620689

Table 3. Leak Checks of Components in EtO Service

If leak checks are performed on multiple types of components in a room area, repeat your entries in Fields B-1 and B-22 of the

Field #	B-1	B-22	B-23	B-24	B-25
Data	Room area ID for all		Component type	Total component	What is the
	rooms and areas	performed in the		count	percentage of
	where EtO is used or	room area?			components that
	emitted				are included in
					regular leak
					checks?

Longitude. Specify to the <u>6th</u> decimal point	Cross-sectional area (square feet)	Height above the ground (feet)	Is air forced out of this NDO? Select from the dropdown menu in this column	Air velocity (feet/minute)	NDO ID. Enter from permit description, if available. Otherwise, use a unique identifier for each NDO	Type. Select from the dropdown menu in this column
-99.503747	5.33	16.00	No (skip the next column)	56.25		
-99.503950	5.33	16.00	No (skip the next column)	56.25	CH1-ND-1	Door
-99.503889	5.33	16.00	No (skip the next column)	56.25	CH2-ND-1	Door
-99.503907	5.33	16.00	No (skip the next column)	56.25	CH3-ND-1	Door
-99.503871	5.33	16.00	No (skip the next column)	56.25	CH4-ND-1	Door
-99.503881	5.33	16.00	No (skip the next column)	56.25	CH5-ND-1	Door
-99.503869	5.33	16.00	No (skip the next column)	56.25	CH6-ND-1	Door
-99.503830	5.33	16.00	No (skip the next column)	56.25	CH7-ND-1	Door
-99.503882	5.33	16.00	No (skip the next column)	56.25	CH8-ND-1	Door
-99.503932	5.33	16.00	No (skip the next column)	56.25	CH9-ND-1	Door
-99.505175	5.33	16.00	No (skip the next column)	56.25	CH10-ND-1	Door
-99.503845	5.33	16.00	No (skip the next column)	56.25		
-99.504309	12.00	23.00	No (skip the next column)	25.00		
-99.503884	5.33	16.00	No (skip the next column)	56.25	EM-BD-2	Window
-99.504245	16.00	3.67	No (skip the next column)	286.00		
						

nis table, then enter corresponding data for each component type

B-26	B-27	B-28
Frequency of leak checks	Average length of	Instrument and standard method for leak checks
	time to perform	
	leak checks	

Orientation. Select from the dropdown menu in this column	Latitude. Specify to the <u>6th</u> decimal point	Longitude. Specify to the <u>6th</u> decimal point	Cross-sectional area (square feet)	Height above the ground (feet)	Is air forced out of this NDO? Select from the dropdown menu in this column	Air velocity (feet/minute)
					Column	
					No (skip the next column)	
Vertical	27.620543	-99.503926	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620527	-99.503938	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620613	-99.503944	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620538	-99.503913	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620597	-99.503920	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620903	-99.503864	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620843	-99.503811	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620783	-99.503862	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620768	-99.503849	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620806	-99.503891	144.00	21.50	No (skip the next column)	8.33
Vertical	27.620308	-99.503896	5.33	16.00	No (skip the next	56.25
					column) No (skip the next column)	

B-29		B-30	B-31
Leak check procedure		Average cost per inspection	Average
			percentage of
			leaking
			components
			identified

NDO ID. Enter from permit description, if available. Otherwise, use a unique identifier for each NDO	Orientation. Select from the dropdown menu in this column	Latitude. Specify to the <u>6th</u> decimal point	Longitude. Specify to the <u>6th</u> decimal point	Cross-sectional area (square feet)	Height above the ground (feet)

	B-32				В	-33	
	Definition of leak			App	olicable state	/local regu	lations

Is air forced out of this NDO? Select from the dropdown menu in this column	Air velocity (feet/minute)	NDO ID. Enter from permit description, if available. Otherwise, use a unique identifier for each NDO	Type. Select from the dropdown menu in this column	Orientation. Select from the dropdown menu in this column	Latitude. Specify to the <u>6th</u> decimal point	Longitude. Specify to the <u>6th</u> decimal point

					B-34						B-35		
			Repair	method/p	rocedure f	or the lea	ks ident	ified	Av	erage c	ost per re identifie	pair for	leaks
											identifie	ed	

Cross-sectional	Height above the	Is air forced out of	Air velocity	NDO ID. Enter	Type. Select from	Orientation. Select
area (square feet)	ground (feet)	this NDO? Select from the dropdown menu in this	(feet/minute)	from permit description, if available.	the dropdown menu in this column	from the dropdown menu in this column
		column		Otherwise, use a unique identifier for each NDO		

B-36	B-37
Are there any specialty components that	Are there any other impediments that would prevent immediate repair of leaks?
are not readily available on site and that	
need to be ordered in the event of a	
component replacement?	

Latitude. Specify to the <u>6th</u> decimal		Cross-sectional area	Height above the ground		Air velocity (feet/minute)	NDO ID. Enter from permit
point	6th decimal point		(feet)	from the dropdown menu in this column		description, if available. Otherwise, use a unique identifier for each NDO
		•••••••••••••••••••••••••••••••••••••••			***************************************	

•		•••••••••••••••••••••••••••••••••••••••	-	_		

Type. Select from the dropdown menu in this column	Orientation. Select from the dropdown menu in this column	Latitude. Specify to the <u>6th</u> decimal point	Longitude. Specify to the <u>6th</u> decimal point	Cross-sectional area (square feet)	Height above the ground (feet)	Is air forced out of this NDO? Select from the dropdown menu in this column

Air velocity (feet/minute)	NDO ID. Enter from permit description, if available. Otherwise, use a unique identifier for each NDO	Type. Select from the dropdown menu in this column	Orientation. Select from the dropdown menu in this column	Latitude. Specify to the <u>6th</u> decimal point	Longitude. Specify to the <u>6th</u> decimal point	Cross-sectional area (square feet)

•						

Height above	Is air forced out of	Air velocity	NDO ID. Enter	Type. Select from	Orientation. Select	Latitude. Specify to
the ground (feet)	this NDO? Select from the dropdown menu in this column	(feet/minute)	from permit description, if available. Otherwise, use a unique identifier for each NDO	the dropdown menu in this column	from the dropdown menu in this column	
						

Longitude.	Cross-sectional	Height above	Is air forced out of	Air velocity	NDO ID. Enter	Type. Select from
Specify to the <u>6th</u> decimal point	area (square feet)	the ground (feet)	this NDO? Select from the dropdown menu in this column	(feet/minute)	from permit description, if available. Otherwise, use a unique identifier	the dropdown menu in this column
					for each NDO	
			•			
		1				
	-					

***************************************	-	-			_	

Orientation. Select	Latitude. Specify to	Longitude.	Cross-sectional	Height above	Is air forced out of	Air velocity
from the dropdown menu in this		Specify to the 6th decimal	area (square feet)	the ground (feet)	this NDO? Select from the dropdown	(feet/minute)
column		point	()		menu in this	
		••••				
		•••••••••••••••••••••••••••••••••••••••				

NDO ID. Enter from permit description, if available. Otherwise, use a unique identifier for each NDO	Type. Select from the dropdown menu in this column	Orientation, Select from the dropdown menu in this column	Latitude. Specify to the <u>6th</u> decimal point	Longitude. Specify to the 6th decimal point	Cross-sectional area (square feet)	Height above the ground (feet)

Is air forced out of this NDO? Select	Air velocity (feet/minute)
from the dropdown menu in this	
column	

Instruction	Select from the	Select from the	Select from the	Specify the total	Specify the
1 7 77 7 77	dropdown menu.		dropdown menu in		percentage of
	Scroll up to see	this column	this column	component of this	components that
	options that are			type	are included in
	auto-populated			1,000	regular leak checks
	based on your				(percent)
					(percent)
	entries in the				
	previous fields				
Response	EO Room	No (skip to B-38)			
	Chamber 1	No (skip to B-38)			
	Chamber 2	No (skip to B-38)			
	Chamber 3	No (skip to B-38)			
	Chamber 4	No (skip to B-38)			
	Chamber 5	No (skip to B-38)			
	Chamber 6	No (skip to B-38)			
	Chamber 7	No (skip to B-38)			
	Chamber 8	No (skip to B-38)			
	Chamber 9	No (skip to B-38)			
	Chamber 10	No (skip to B-38)			
	Vacuum Pump	No (skip to B-38)			
	Room				
	Warehouse	No (skip to B-38)			
	Emissions Room	No (skip to B-38)			
		, , , , ,			
	Safe Cell	No (skip to B-38)			
		()			

			<u> </u>		
					
					
					
					
					
					ļ
					
	 				

Table 4. Room Area Controls

performed	length of time to	Briefly describe the instrument and standard method used for leak checks		
	perform leak			
	checks per			
	component type,			
	per inspection			
	(hours)			

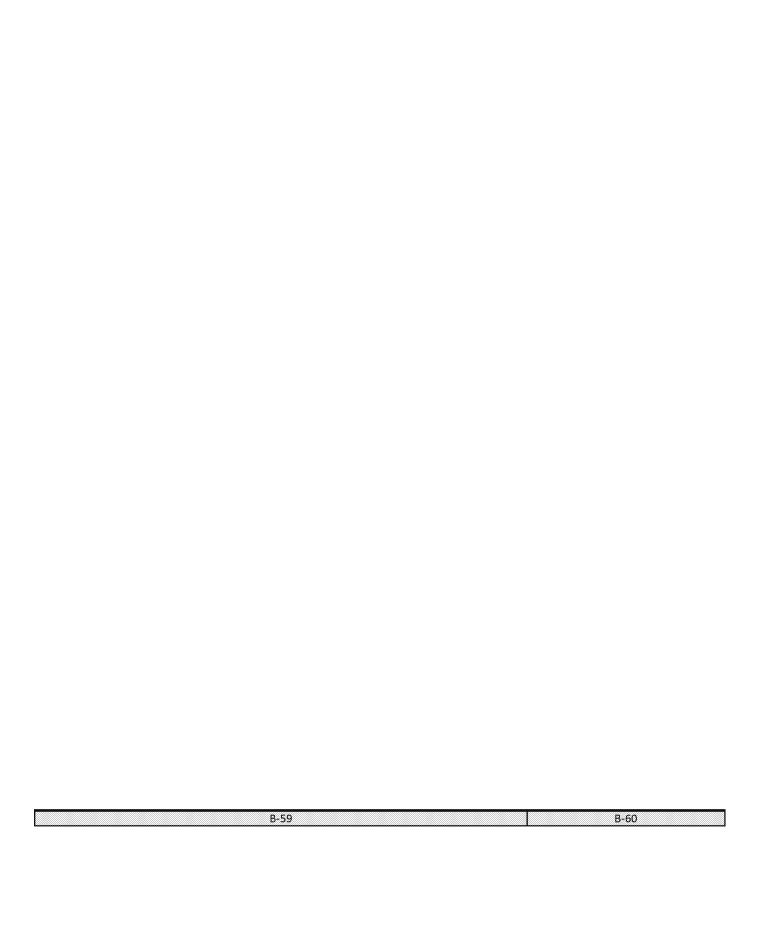
Describe the leak check procedure for each room area. Specifically, provide any action levels	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter average percentage of leaking components identified during
			each leak check (percent)

 	0/17 1		TO AE
	D-4/ I	D-43 I D-44	

If applicable, specify the definition or criteria of leak in the state/local	Specify any state/local regulations applicable to your facility
regulations that require leak checks, or the definition that facility refers to	
p.46 p.47 p.40	D 50
B-46 B-47 B-48 B-49	B-50 B-

leak checks	Provide a brief description of the repair method/procedure for the leaks	Enter the dollar	Specify the
	identified	amount in this	dollar <u>year</u> ir this column
		column	this column
			_
			_

Select from the	How long does it	Select from the	List the impediments that would prevent immediate repair of leaks
			(if you select "Yes" on the left)
this column	the facility to	this column	\ <u>\</u>
tina column	receive the	Lina Column	
	components?		
	(days)		
	(<u>if you select "Yes"</u>		
	on the left)		
	1		
	ļ		



B-61











Data	Room area ID for all rooms and areas where EtO is used or emitted	APCD, used as cascading air, vented to		APCD 1 fo
Instruction	This column will be auto-populated based on your entries in the previous fields	Select from the dropdown menu in this column	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dro column If you select "Other specify)", be sure to between the paren
Response	EO Room Chamber 1 Chamber 2 Chamber 3 Chamber 4 Chamber 5 Chamber 6 Chamber 7 Chamber 8 Chamber 9 Chamber 10 Vacuum Pump Room Warehouse Emissions Room			
	Safe Cell			

room area			APCD 2 for room area (if any)		
down menu in this double click to ype your entries eses "()"	Enter the <u>average</u> air flow routed from the room to this APCD (actual cubic feet per minute, acfm)	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Enter the <u>average</u> air flow routed from the room to this APCD (actual cubic feet per minute, acfm)	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD

APCD 3 for room area (if any)		Material of duct work for room area venting	Total length of duct work for room area venting		Is the cross section of duct work for room area venting circular or rectangular?
Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Enter the <u>average</u> air flow routed from the room to this APCD (actual cubic feet per minute, acfm)	Specify the material of duct work	Enter the <u>total</u> length of duct work (feet)	Enter the <u>average</u> thickness of duct work (inches)	Select from the dropdown menu in this column

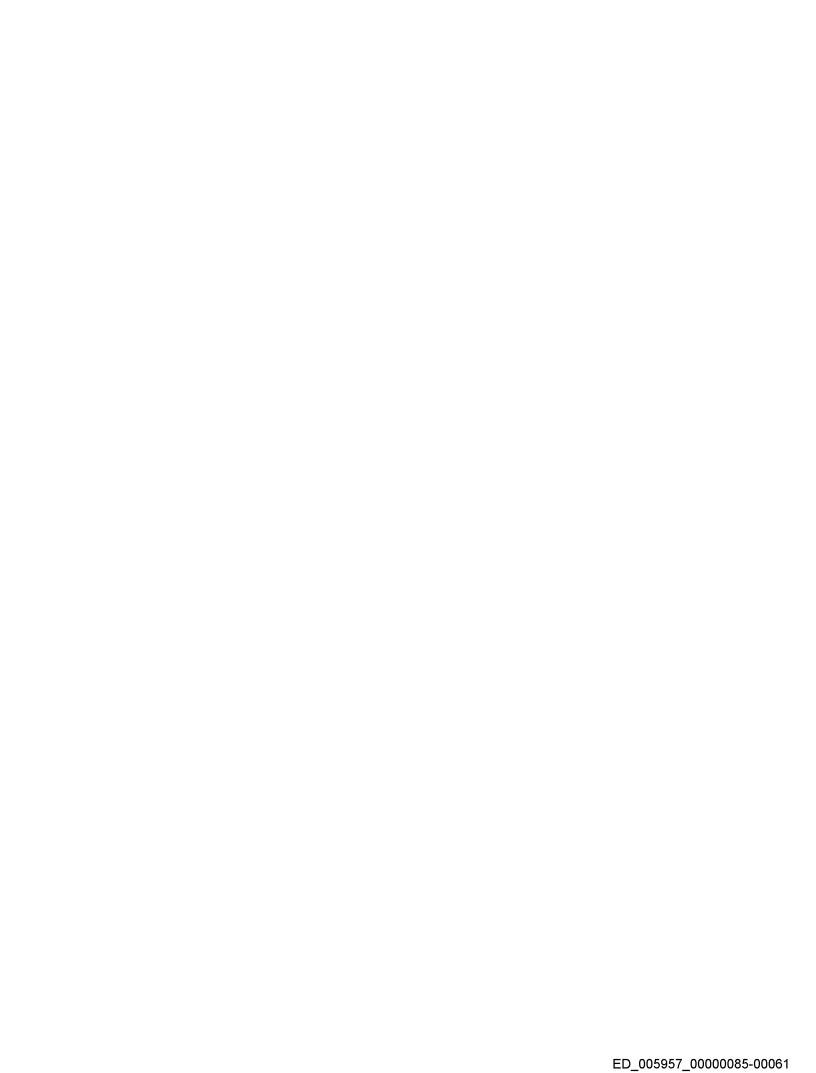
Diameter of duct work (<u>For circular duct</u> work only)	Cross-sectional height of duct work (For rectangular duct work only)	Cross-sectional width of duct work (For rectangular duct work only)	Are the dimensions of duct work constant throughout?	Diameter of duct work (For circular duct work only)		Cross-sectional he (For rectangular
Enter the <u>average</u> diameter of duct work (feet)	Enter the <u>average</u> cross-sectional height of duct work (feet)	Enter the <u>average</u> cross-sectional width of duct work (feet)		Enter the maximum diameter of duct work (feet)	Enter the minimum diameter of duct work (feet)	Enter the maximum cross- sectional height of duct work (feet)

ight of duct work duct work only)		vidth of duct work r duct work only)	Year in which duct work was installed	Expected lifetime of duct work	Capital cost of duct work for roo area venting (estimated or actua	
Enter the <u>minimum</u> cross-sectional height of duct work (feet)	maximum cross-	Enter the minimum cross-sectional width of duct work (feet)	Enter the calendar year	Enter the expected lifetime of duct work (years)	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column

Specify the room area ID or unit ID the air is vented to if the room area air is used as cascading air for reuse in another room or unit (i.e., vented as the input air to another area). If more than one room area/unit is involved list all the IDs separated by commas	description, if
	Otherwise, use a unique identifier for each stack

Stack parameter (for room area vented to the atmosphere only)					Stack coordinates (for room area vented to the atmosphere only)		
Enter the stack height (feet)	Enter the stack diameter (feet)	Enter the temperature at stack outlet (Fahrenheit)	Enter the exhaust velocity at stack outlet (feet/second)	Enter the volumetric flow rate at stack outlet (cubic feet/second)	of stack. Specify to the <u>6th</u> decimal	Enter the longitude of stack Specify to the <u>6th</u> decimal point	

Other handling of air from room area
Provide a brief description of any air pollution control or handling procedure if air from this room area is not: vented to an APCD; used as cascading air; or
vented to the atmosphere











Ethylene Oxide (EtO) Commercial Sterilization CAA Section 114 Survey

C. EtO Drum and Container Storage

Field #	Data	Instruction	
C-1	How many EtO drums and/or containers are typically		75
	stored at the facility at once?		
C-2	Permitted amount of EtO storage	(pounds)	34,000.00
C-3	Is there a designated area for storing EtO drums	Select from the dropdown menu	Yes
C-4	Describe the designated area for EtO drum and/or		EtO drums are store
C-5	Describe the storage location for full and empty		Indoors in an enclos
C-6	Specify the maximum number of full EtO storage		seventy-five 400-por
C-7	Is the ambient air in the storage areas continually	Select from the dropdown menu	Yes
C-8	Describe the make/model and range of the		Air samples are take
C-9	How often are new drums or containers delivered to		Weekly
C-10	What is the procedure for checking drums or		Employees will verify
C-11	Are drums or containers placed next to sterilizer	Select from the dropdown menu	No
C-12	Describe how EtO is charged to the sterilizer chamber		When cycle paramet

D. Ethylene Glycol (EG) Tanks

Field #	D-1	D-2	D-3	D-4	D-5	D-6
Data	Ethylene glycol (EG) tank ID	Material	Capacity	Throughput	Year in which EG tank was installed	Expected lifetime of EG tank
Instruction	Enter from permit description, if available. Otherwise, use a unique identifier for each EG tank	Specify the material of EG tank	Enter the capacity of EG tank (gallons)	Enter the average daily throughput of EG tank (gallons per day)	Enter the calendar year	Enter the expected lifetime of EG tank (years)
Response	Storage Tank-1	fiber glass	11000.00	430.00	2004	75.00

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right



If yes, be sure to shade the fields containing CBI in red , and follow the

Response
d in a separate storage room ed room
and drums
n approximately every 45 minutes with a gas chromatograph. Baseline MOCON Inc. Series 8900 gas
y the Certificate of Analysis is 99.9% EtO. The employee will initial and date the certificate to indicate approval. If
ers call for ETO injection an automated control valve is opened to allow the gas to flow from the process storage

D-7		D-8 Installation cost of EG tank		D-9 Annual cost of EG tank		D-10 Is the EG tank routed to any control device?
Capital cost of EG tank						
Enter the dollar amount in this column	Specify the dollar year in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Select from the dropdown menu in this column
						No (fill out D-28 through D-30)

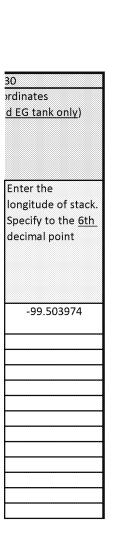
	D-11	D-12		
	APCD 1 for EG tank			APCD 2 for EG tank (if any)
APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Enter the average air flow routed from the tank to this APCD (actual cubic feet per minute, acfm)	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"

	D-13	D-14	D-15	D-16	D-17	D-18
	Material of duct	Total length of	Average thickness	Is the cross section	Diameter of duct	Cross-sectional
	work for EG tank	duct work for EG	of duct work for	of duct work for EG	work	height of duct work
		tank	EG tank	tank circular or	(For circular duct	(<u>For rectangular</u>
				rectangular?	work only)	duct work only)
Enter the average	Specify the	Enter the total	Enter the average	Select from the	Enter the average	Enter the average
air flow routed	material of duct	length of duct	thickness of duct	dropdown menu in	diameter of duct	cross-sectional
from the tank to	work	work	work	this column	work	height of duct work
this APCD		(feet)	(inches)		(feet)	(feet)
(actual cubic feet						
per minute, acfm)						
	1		<u> </u>		L	l

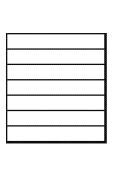
D-19	D-20 D-21		-21	D	D-;	
Cross-sectional width of duct work (For rectangular duct work only)	Are the dimensions of duct work constant throughout?	l	of duct work duct work only)	Cross-sectional height of duct work (For rectangular duct work only)		Cross-sectional w (For rectangular
Enter the <u>average</u> cross-sectional width of duct work (feet)	Select from the dropdown menu in this column	Enter the maximum diameter of duct work (feet)	Enter the minimum diameter of duct work (feet)	Enter the maximum cross- sectional height of duct work (feet)	Enter the minimum cross-sectional height of duct work (feet)	maximum cross-

23	D-24	D-25	D-26		D-27	
idth of duct work duct work only)	Year in which duct work was installed				Installation cost of duct work for EG tank (estimated or actual)	
Enter the minimum cross- sectional width of duct work (feet)	Enter the calendar year	Enter the expected lifetime of duct work (years)	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column

D-28		D-29					
Stack ID to which the <u>uncontrolled</u> EG tank vents (<u>for uncontrolled</u> <u>EG tank only</u>)		(<u>fo</u>	Stack coc (for uncontrolle				
Enter from permit description, if available. Otherwise, use a unique identifier for each stack	Enter the stack height (feet)	Enter the stack diameter (feet)	Enter the temperature at stack outlet (Fahrenheit)	Enter the exhaust velocity at stack outlet (feet/second)	Enter the volumetric flow rate at stack outlet (cubic feet/second)	Enter the latitude of stack. Specify to the <u>6th</u> decimal point	
STV-1	40.00	0.17	75.00	13.00	17.00	27.620308	



		***************************************	000000000000000000000000000000000000000



Ethylene Oxide (EtO) Commercial Sterilization CAA Section 114 Survey

E. Sterilization Chambers

Table 1. Summary for Sterilizer Chambers

Field #	Data	Response
E-0 Enter the t	otal number of sterilizer chambers at your facility	10

Table 2. Sterilizer Chamber Operation and Monitoring Characteristics

Field #	E-1	E-2	E-3	E-4	E-5	E-6
Data	Sterilizer unit ID	Associated EIS release point ID	Is this an R&D chamber (under the definition of research and laboratory facility)?	Does aeration of the sterilized product occur in the same sterilizer chamber?	Is this a single-item chamber?	Volume of sterilizer chamber
Instruction	Enter from permit description, if available. Otherwise, use a unique identifier for each sterilizer	Enter the EIS release point ID associated with the sterilizer unit, if any		Select from the dropdown menu in this column (If you select "Yes" for any sterilizer, fill out Table 3 in Aeration tab)	Select from the dropdown menu in this column	(cubic feet)
Response	Chamber 1		No	No	No	4425.00
	Chamber 2		No	No	No	4425.00
	Chamber 3		No	No	No	4425.00
	Chamber 4		No	No	No	4425.00
	Chamber 5		No	No	No	4425.00
	Chamber 6		No	No	No	4425.00
	Chamber 7		No	No	No	4425.00
	Chamber 8		No	No	No	4425.00
	Chamber 9		No	No	No	4425.00
	Chamber 10		No	No	No	4425.00

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right → If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document



E-7	E-8			E-9		
How many cycles per year are conducted in the sterilizer chamber in total?	Temperature (For combination sterilizers, enter temperature for sterilization mode only)				Relative humidity	
	Enter the <u>average</u> temperature of sterilizer chamber when in operation (Fahrenheit)	Enter the maximum temperature of sterilizer chamber when in operation (Fahrenheit)	Enter the minimum temperature of sterilizer chamber when in operation (Fahrenheit)	Enter the <u>average</u> relative humidity within sterilizer chamber when in operation (percent)	Enter the maximum relative humidity within sterilizer chamber when in operation (percent)	Enter the minimum relative humidity within sterilizer chamber when in operation (percent)
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%
	120.00	135.00	105.00	60.00%	90.00%	30.00%

E-	10	E-11	E-12			
Pres	sure	Does the sterilizer chamber have positive pressure cycles?	EtO dose per cycle		Number	
pressure within the chamber during EtO dwell period (psig)	Enter the magnitude of vacuum on average that is applied during evacuation (psig)		Enter the <u>average</u> EtO dose per cycle (mg/L)	Enter the maximum EtO dose per cycle (mg/L)	Enter the <u>minimum</u> EtO dose per cycle (mg/L)	Enter the <u>average</u> number of nitrogen washes per cycle
-3.13	4.67	No				4
-3.13	4.67	No				4
-3.13	4.67	No				4
-3.13	4.67	No				4
-3.13	4.67	No				4
-3.13	4.67	No				4
-3.13	4.67	No				4
-3.13	4.67	No				4
-3.13	4.67	No				4
-3.13	4.67	No				4
	<u> </u>	L	J		I	

E-13			E-14	E-15		
of nitrogen washes per cycle		Nitrogen used for washes during each cycle			Annual cost of nitrogen washes	
		Enter the <u>average</u> amount of nitrogen used during each cycle (pounds)	Enter the maximum amount of nitrogen used during each cycle (pounds)	Enter the minimum amount of nitrogen used during each cycle (pounds)		Specify the dollar year in this column
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		
5	3	831.00	900.00	700.00		

E-16		T	E-1			
Numb	er of air washes pe	r cycle	Air used	Annual cost c		
Enter the <u>average</u> number of air washes per cycle	Enter the maximum number of air washes per cycle	Enter the minimum number of air washes per cycle	Enter the <u>average</u> amount of air used during each cycle (pounds)	Enter the maximum amount of air used during each cycle (pounds)	Enter the minimum amount of air used during each cycle (pounds)	Enter the dollar amount in this column
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
12	12	1	1,880.00	1,700.00	2,050.00	
			<u> </u>		<u> </u>	L

.8	E-19	E-20		E-21	E-22	
f air washes	Average electricity used per gas wash (nitrogen washes and air washes combined)	Annual cost of electricity for gas washes (nitrogen washes and air		Are leak checks performed on sterilizer chamber?	Frequency of leak checks for sterilizer chamber	
Specify the dollar <u>year</u> in this column	(kWh)	Enter the dollar amount in this column		Select from the dropdown menu in this column	Specify the frequency of leak checks for sterilizer chamber	
				Yes	1 leak test during each routine cycle (approximately 2 routine cycles ran per	
				Yes	1 leak test during each routine cycle	
				Yes	1 leak test during each routine cycle	
				Yes	1 leak test during each routine cycle (approxiatmetly 2 routine cycles ran	
				Yes	1 leak test during each routine cycle (approxiatmetly 2 routine cycles ran	
				Yes	1 leak test during each routine cycle (approxiatmetly 2 routine cycles ran	
				Yes	1 leak test during each routine cycle (approxiatmetly 2 routine cycles ran	
				Yes	1 leak test during each routine cycle (approxiatmetly 2 routine cycles ran	
				Yes	1 leak test during each routine cycle (approxiatmetly 2 routine cycles ran	
				Yes	1 leak test during each routine cycle (approxiatmetly 2 routine cycles ran	

E-23	E-24	E-25		
Average length of time to perform a leak check	Leak check procedure(s) for sterilizer chamber	Annual cost of leak checks for sterilizer chamber		
Enter average length of time to perform a leak check (minutes)	Provide a brief description of the leak check procedure(s) for sterilizer chamber	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks were incurred air would leak into the chamber and nothing would leak out.			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks were incurred air would leak into the chamber and nothing would leak out.			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks were incurred air would leak into the chamber and nothing would leak out.			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks were incurred air would leak into the chamber and nothing would leak out.			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks were incurred air would leak into the chamber and nothing would leak out.			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks were incurred air would leak into the chamber and nothing would leak out.			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks were incurred air would leak into the chamber and nothing would leak out.			
300.00	Please note all routine production cycles are ran under a vacuum so if any leaks were incurred air would leak into the chamber and nothing would leak out.			

E-26	E-27	E-28		
Average quantity of leaks identified per year Enter average quantity of leaks found per year		Average cost per repair for the leaks identified		
	Provide a brief description of the repair method/procedure for the leaks identified	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	
	If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be If chamber leaks are identified the sterilization software will notify the If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be If chamber leaks are identified the sterilization software will notify the operator who will notify the maintenance department. Each leak will be			

E-29				E-30					
Is an EtO concentration monitor used within this sterilizer chamber?	Description of the EtO concentration monitor used within this sterilizer cha								
Select from the	Enter the <u>type</u> of EtO	Enter the	Enter the model of	Specify the method of detection of EtO					
	concentration monitor	manufacturer of EtO concentration monitor	EtO concentration monitor	concentration monitor					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
165	Optical gas detector	Selisor Electronics	1420397	iiiiaieu					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
Yes	optical gas detector	Sensor Electronics	1420597	Infrared					
•									
}									

		E-31	E-32	E-33		E-34
nber		Year in which the EtO concentration monitor was installed	Expected lifetime of the EtO concentration monitor	monitor used w	e EtO concentration rithin this sterilizer nmber	Installation cos: concentration moni this sterilizer
Enter the <u>value</u> of detection level of EtO concentration monitor		Enter the calendar year	Enter the expected lifetime of the EtO concentration monitor (years)	Enter the dollar amount in this column	Specify the dollar year in this column	Enter the dollar amount in this column
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
10.00	Mg/L	2018	2.00			
			<u> </u>			

	l E	-35	E-36
t of the EtO tor used within chamber	monitor used w	e EtO concentration rithin this sterilizer amber	Standards or work practices followed for the EtO concentration monitor used within this sterilizer chamber
Specify the dollar <u>year</u> in this column	1 1 1		Provide a brief description of any standards or work practices followed for the EtO concentration monitor used within the chamber
			The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations The ETO concentration monitor is used to measure gas concentrations The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer The ETO concentration monitor is used to measure gas concentrations during processing. These gas levels are used to verify customer

E-37						
Duration of produ	Total durati sterilizer	Concentration that				
Enter the <u>average</u> duration (hours)	Enter the maximum duration (hours)	Enter the <u>minimum</u> duration (hours)	Enter the average duration (hours)	Enter the maximum duration (hours)	Enter the minimum duration (hours)	Specify the <u>unit</u> of concentration. Select from the dropdown menu in this column
***************************************						I

E-39		E-40	E-41	E-42		
EtO is reduced to before moving the product out of this sterilizer chamber		Is EtO from sterilizer captured for re-use?	Is water used during this process?	Amount of water disposed annually	Met	
Enter the <u>average</u> concentration that EtO is reduced to (ppm or % LEL)		Enter the minimum concentration that EtO is reduced to (ppm or % LEL)	Select from the dropdown menu in this column	Select from the dropdown menu in this column	(gallons)	Provide a brief desc after being used to
			No (skip to E-51)			
			No (skip to E E1)			
wannersannersannannersannersannersannersannersannersannersannersannersannersannersannersannersannersannersanne			No (skip to E-51) No (skip to E-51)			
***************************************			No (skip to E-51)			
•••••••••••••••••••••••••••••••			No (skip to E-51)			
			No (skip to E-51)			
			No (skip to E-51)			
•			No (skip to E-51)			
			No (skip to E-51)			
			No (skip to E-51)			
***************************************			***************************************			
waacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoonaacoona			***************************************			
••••						
						

E-43	E-44		E-45	E-46	E-47
hod of water disposal	Annual costs associated with water disposal		What is the percentage of EtO recovered by this system?	Year in which the EtO recovery system was installed	Expected lifetime of the EtO recovery system
ription about how water is disposed capture EtO for re-use	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	(percent)	Enter the calendar year	Enter the expected lifetime of the EtO recovery system (years)

E-	48	E-	-49	E-	E-50	
system used wi	he EtO recovery th this sterilizer nber	recovery system	Installation cost of the EtO recovery system used with this sterilizer chamber		the EtO recovery lith this sterilizer ng costs associated er treatment and losal)	
Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	



	***	************************************	***	***************************************	***************************************
			••••		

Table 3. Control Characteristics for Sterilizer Chambers

Field #	E-1	E-51		E-52	
Data	Sterilizer unit ID	Is the sterilizer chamber vent (SCV) routed to any control device?		APCD 1 for sterilizer chamber vent (SCV)	
Instruction	This column will be auto-populated based on your entries in the previous fields	Select from the dropdown menu in this column	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Enter the <u>average</u> air flow routed from the vent to this APCD (actual cubic feet per minute, acfm)
Response	Chamber 1	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00
	Chamber 2	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00
	Chamber 3	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00
	Chamber 4	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00
	Chamber 5	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00
	Chamber 6	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00
	Chamber 7	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00
	Chamber 8	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00

	E-53			E-54
APCD 2 for sterilizer chamber vent (SCV) (if any)			APCD 3 for sterilizer chamber vent (SCV) (if	
APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Enter the average air flow routed from the vent to this APCD (actual cubic feet per minute, acfm)	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"

	E-55	E-56	E-57	E-58	E-59	E-60
iny)	Material of duct work for sterilizer chamber vent (SCV)	Total length of duct work for sterilizer chamber vent (SCV)		Is the cross section of duct work for sterilizer chamber vent (SCV) circular or rectangular?	Diameter of duct work (<u>For circular duct</u> work only)	Cross-sectional height of duct work (For rectangular duct work only)
Enter the <u>average</u> air flow routed from the vent to this APCD (actual cubic feet per minute, acfm)	Specify the material of duct work	Enter the <u>total</u> length of duct work (feet)	Enter the <u>average</u> thickness of duct work (inches)	Select from the dropdown menu in this column	Enter the <u>average</u> diameter of duct work (feet)	Enter the <u>average</u> cross-sectional height of duct work (feet)
	carbon steel and black iron	230.00	0.25	Circular (fill out E- 59 & E-63 as appropriate)	0.33	
	carbon steel and black iron	210.00	0.25	Circular (fill out E- 59 & E-63 as appropriate)	0.33	
	carbon steel and black iron	190.00	0.25	Circular (fill out E- 59 & E-63 as appropriate)	0.33	
	carbon steel and black iron	170.00	0.25	Circular (fill out E- 59 & E-63 as appropriate)	0.33	
	carbon steel and black iron	150.00	0.25	Circular (fill out E- 59 & E-63 as appropriate)	0.33	
	carbon steel and black iron	200.00	0.25	Circular (fill out E- 59 & E-63 as appropriate)	0.33	
	carbon steel and black iron	220.00	0.25	Circular (fill out E- 59 & E-63 as appropriate)	0.33	
	carbon steel and black iron	240.00	0.25	Circular (fill out E- 59 & E-63 as appropriate)	0.33	

E-61	E-62	E-	63	E-	-64	E-r
Cross-sectional width of duct work (For rectangular duct work only)	Are the dimensions of duct work constant throughout?	Diameter o (For circular d	duct work Cross-sectional		eight of duct work r duct work only)	Cross-sectional w (For rectangular
Enter the <u>average</u> cross-sectional width of duct work (feet)		Enter the maximum diameter of duct work (feet)	Enter the <u>minimum</u> diameter of duct work (feet)	Enter the maximum cross- sectional height of duct work (feet)	Enter the <u>minimum</u> cross-sectional height of duct work (feet)	maximum cross-
	No (fill out respective fields)	0.50	0.17			
	No (fill out respective fields)	0.50	0.17			
	No (fill out respective fields)	0.50	0.17			
	No (fill out respective fields)	0.50	0.17			
	No (fill out respective fields)	0.50	0.17			
	No (fill out respective fields)	0.50	0.17			
	No (fill out respective fields)	0.50	0.17			
	No (fill out respective fields)	0.50	0.17			

5 5	E-66	E-67	[E-68		E-69		
idth of duct work duct work only)			chamber vent (Capital cost of duct work for sterilizer chamber vent (SCV) (estimated or actual)		Installation cost of duct work for sterilizer chamber vent (SCV) (estimated or actual)		
Enter the minimum cross-sectional width of duct work (feet)	Enter the calendar year	Enter the expected lifetime of duct work (years)	Enter the dollar amount in this column	Specify the dollar year in this column	Enter the dollar amount in this column	Specify the dollar year in this column		
	2004	75.00						
	2004	75.00						
	2004	75.00						
	2004	75.00						
	2004	75.00						
	2004	75.00						
	2004	75.00						
	2004	75.00						

E-70			E-71			E-	
Stack ID to which			Stack paramete	ır		Stack coc	
the uncontrolled		(for uncontrolled SCV only)					
sterilizer chamber		· ·				(for uncontrol	
vent (SCV) vents							
(for uncontrolled							
SCV only)							
Enter from	Enter the stack	Enter the stack	Enter the	Enter the <u>exhaust</u>	Enter the	Enter the latitude	
permit	<u>height</u>	<u>diameter</u>	temperature at	velocity at stack	volumetric flow	of stack. Specify to	
description, if	(feet)	(feet)	stack outlet	outlet	<u>rate</u> at stack outlet		
available.			(Fahrenheit)	(feet/second)	(cubic feet/second)	point	
Otherwise, use a							
unique identifier							
for each stack							

72	E-73	E-74		E-75	E-76	
ordinates led SCV only)	Is there a chamber exhaust vent (CEV)?		O concentration that ctivation of the CEV?	tion that Is an interlock system present that		
Enter the longitude of stack. Specify to the <u>6th</u> decimal point	Select from the dropdown menu in this column	Select from the dropdown menu in this column	Enter the value if you select "Yes" on the left (ppm)	Select from the dropdown menu in this column	Enter the calendar year	
	Yes	No (skip to E-75)		No (skip to E-81)		
	Yes	No (skip to E-75)		No (skip to E-81)		
	Yes	No (skip to E-75)		No (skip to E-81)		
	Yes	No (skip to E-75)		No (skip to E-81)		
	Yes	No (skip to E-75)		No (skip to E-81)		
	Yes	No (skip to E-75)		No (skip to E-81)		
	Yes	No (skip to E-75)		No (skip to E-81)		
	Yes	No (skip to E-75)		No (skip to E-81)		

E-77	E-78		E-	79			
Expected lifetime of the interlock system					Standards or work practice		
Enter the expected lifetime of the interlock system (years)	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Provide a brief description of any star interlock system that prevents activat reached		

E-80	E-81		E-82	
s followed for the interlock system	Is the chamber exhaust vent (CEV) routed to any control device?		APCD 1 for chamber exhaust vent (CEV)	
ndards or work practices followed for tion of the CEV until a set concentration is	Select from the dropdown menu in this column	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	
	Yes (fill out E-82 through E-107)	SC-2	Dry-bed scrubber	
	Yes (fill out E-82 through E-107)	SC-2	Dry-bed scrubber	
	Yes (fill out E-82 through E-107)	SC-2	Dry-bed scrubber	
	Yes (fill out E-82 through E-107)	SC-2	Dry-bed scrubber	
	Yes (fill out E-82 through E-107)	SC-2	Dry-bed scrubber	
	Yes (fill out E-82 through E-107)	SC-2	Dry-bed scrubber	
	Yes (fill out E-82 through E-107)	SC-2	Dry-bed scrubber	
	Yes (fill out E-82 through E-107)	SC-2	Dry-bed scrubber	

		E-83			E-8
Enter the <u>average</u> air flow routed from the vent to this APCD (actual cubic feet per minute, acfm)	AF	CD 2 for chamber exhaust vent (CEV) (i	APCD 3 for chamber exh		
	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Enter the <u>average</u> air flow routed from the vent to this APCD (actual cubic feet per minute, acfm)	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the drop this column If you select "Other specify)", be sure to entries between the "()"
1833.50					
1142.67					
1403.00					
1474.83					
1184.83					
1167.50					
1416.00					
1248.67					

4		E-85	E-86	E-87	E-88	E-89
aust vent (CEV) (if any)	Material of duct work for chamber exhaust vent (CEV)	Total length of duct work for chamber exhaust vent (CEV)	Average thickness of duct work for chamber exhaust vent (CEV)	Is the cross section of duct work for chamber exhaust vent (CEV) circular or rectangular?	Diameter of duct work (For circular duct work only)
down menu in (double click to type your parentheses	Enter the <u>average</u> air flow routed from the vent to this APCD (actual cubic feet per minute, acfm)	Specify the material of duct work	Enter the <u>total</u> length of duct work (feet)	Enter the average thickness of duct work (inches)	Select from the dropdown menu in this column	Enter the <u>average</u> diameter of duct work (feet)
		Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as appropriate)	18.00
		Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as appropriate)	18.00
		Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as appropriate)	18.00
		Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as appropriate)	18.00
		Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as appropriate)	18.00
		Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as appropriate)	18.00
		Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as appropriate)	18.00
		Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as appropriate)	18.00

E-90	E-91	E-92	E	E-93		E-94		
Cross-sectional height of duct work (For rectangular duct work only)	Cross-sectional width of duct work (<u>For rectangular</u> duct work only)	ross-sectional Are the dimensions th of duct work or rectangular constant		of duct work duct work only)	Cross-sectional height of duct work (For rectangular duct work only)			
Enter the <u>average</u> cross-sectional height of duct work (feet)	Enter the <u>average</u> cross-sectional width of duct work (feet)	dropdown menu in this column	Enter the maximum diameter of duct work (feet)	Enter the minimum diameter of duct work (feet)	Enter the maximum cross- sectional height of duct work (feet)	Enter the minimum cross-sectional height of duct work (feet)		
		No (fill out respective fields)	22.00	14.00				
		No (fill out respective fields)	22.00	14.00				
		No (fill out respective fields)	22.00	14.00				
		No (fill out respective fields)	22.00	14.00				
		No (fill out respective fields)	22.00	14.00				
		No (fill out respective fields)	22.00	14.00				
		No (fill out respective fields)	22.00	14.00				
		No (fill out respective fields)	22.00	14.00				

E-	E-95		E-97		E-98	E-99
	vidth of duct work r duct work only)	Year in which duct work was installed	Expected lifetime of duct work	Capital cost of duct work for chamber exhaust vent (CEV) (estimated or actual)		Installation cost o chamber exhau: (estimated c
Enter the maximum cross- sectional width of duct work (feet)	Enter the minimum cross-sectional width of duct work (feet)	Enter the calendar year	Enter the expected lifetime of duct work (years)	Enter the dollar amount in this column	Specify the dollar year in this column	Enter the dollar amount in this column
		2019	75.00			
		2019	75.00			
		2019	75.00			
		2019	75.00			
		2019	75.00			
		2019	75.00			
		2019	75.00			
		2019	75.00			

)	E-100	E-101	E-102	E-103	E-	104
f duct work for st vent (CEV) or actual)	Is any APCD installed solely for the purpose of controlling emissions from the CEV?	If not, was a damper system installed for the purpose of adjusting the flow rate to the control device upon CEV activation?	Year in which the damper system was installed	Expected lifetime of the damper system	Capital cost of the	ne damper system
Specify the dollar <u>year</u> in this column	Select from the dropdown menu in this column	Select from the dropdown menu in this column	Enter the calendar year	Enter the expected lifetime of the damper system (years)	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column
	Yes (fill out E-107)					
	Yes (fill out E-107)					
	Yes (fill out E-107)					
	Yes (fill out E-107)					
	Yes (fill out E-107)					
	Yes (fill out E-107)					
	Yes (fill out E-107)					
	Yes (fill out E-107)					

 	000000000000000000000000000000000000000	 	

E-	105	E-	106	E-107	E-108	
	t of the damper tem	Annual cost of the	ne damper system	Specify the ID(s) of any APCD installed solely for the purpose of controlling emissions from the CEV	Stack ID to which the <u>uncontrolled</u> chamber exhaust vent (CEV) vents (<u>for uncontrolled</u> CEV only)	
Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	List all the APCD IDs separated by commas	Enter from permit description, if available. Otherwise, use a unique identifier for each stack	
				SC-2		
				SC-2		
				SC-2		
				SC-2		
				SC-2		
				SC-2		
				SC-2		
				SC-2		

		E-	E-110			
	(1		ordinates illed CEV only)			
Enter the stack height (feet)	Enter the stack diameter (feet)	Enter the temperature at stack outlet (Fahrenheit)	Enter the exhaust velocity at stack outlet (feet/second)	Enter the volumetric flow rate at stack outlet (cubic feet/second)		Enter the longitude of stack. Specify to the <u>6th</u> decimal point

Chamber 9	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00
Chamber 10	Yes (fill out E-52 through E-69)	WS-1	Wet scrubber	300.00

Table 4. Control Characteristics for Sterilizer Chambers (continued)

Field #	E-1	E-111	E-112		E-113
Data	Sterilizer unit ID	Is there a cover hood or vent over the sterilizer chamber door (e.g., hooded vent above the sterilizer chamber door)?			APCD 1 for cover hood or vent
Instruction	This column will be auto-populated based on your entries in the previous fields	Select from the dropdown menu in this column	Select from the dropdown menu in this column	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"
Response	Chamber 1 Chamber 2	No (skip to E-133) No (skip to E-133)			
	Chamber 3	No (skip to E-133)			

100000000000000000000000000000000000000	Rescondences	Ataccacacacacacacacacacacacacacacacacaca	600000000000000000000000000000000000000	

		E-114		E-115	E-116
		APCD 2 for cover hood or vent (if any)	Material of duct work for cover hood or vent	Total length of duct work for cover hood or vent	
Enter the average air flow routed from the cover hood or vent to this APCD (actual cubic feet per minute, acfm)	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Enter the average air flow routed from the cover hood or vent to this APCD (actual cubic feet per minute, acfm)	Specify the material of duct work	Enter the <u>total</u> length of duct work (feet)

carbon steel and	340.00	0.25	Circular (fill out E-	0.33	
black iron			59 & E-63 as		
 			appropriate)		
carbon steel and	360.00	0.25	Circular (fill out E-	0.33	
black iron			59 & E-63 as		
			appropriate)		

E-117	E-118	E-119	E-120	E-121	E-122	E-1
Average thickness	Is the cross section	Diameter of duct	Cross-sectional	Cross-sectional	Are the dimensions	Diameter of
of duct work for	of duct work for	work	height of duct work	width of duct work	of duct work	(<u>For circular du</u>
cover hood or vent	the cover hood or	(For circular duct	(<u>For rectangular</u>	(<u>For rectangular</u>	constant	
	vent circular or	work only)	duct work only)	duct work only)	throughout?	
	rectangular?					
Enter the <u>average</u>	Select from the	Enter the <u>average</u>	Enter the <u>average</u>	Enter the <u>average</u>	Select from the	Enter the
thickness of duct	dropdown menu in		cross-sectional	cross-sectional	dropdown menu in	maximum diameter
work	this column	work	height of duct work	width of duct work		of duct work
(inches)		(feet)	(feet)	(feet)		(feet)
		<u> </u>	<u> </u>			

	No (fill out respective fields)	0.50	0.17		
	No (fill out respective fields)	0.50	0.17		
000000000000000000000000000000000000000		***************************************		 000000000000000000000000000000000000000	

23	E-124		E-125		E-126	E-127
duct work	Cross-sectional height of duct work			Cross-sectional width of duct work		Expected lifetime
		k only) (For rectangular duct work only)		(For rectangular duct work only)		of duct work
Enter the	Enter the	Enter the minimum	Enter the	Enter the minimum	Enter the calendar	Enter the expected
<u>minimum</u>	maximum cross-		maximum cross-	cross-sectional	year	lifetime of duct
diameter of duct	sectional height of	height of duct work	•	width of duct work		work
work (feet)	duct work (feet)	(feet)	duct work (feet)	(feet)		(years)

2004	75.00		
2004	75.00		

E-	E-128		E-129	E-130		
	uct work for cover timated or actual)	1	of duct work for cover estimated or actual)	over Stack ID to which		(<u>for uncont</u> ı
Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar year in this column		Enter the stack height (feet)	Enter the stack diameter (feet)

			•	
000000000000000000000000000000000000000		000000000000000000000000000000000000000	***************************************	

E-131			E-	132	E-133
Stack parameter olled cover hood or vent only)			Stack co (for uncontrolled or	Is any SCV or CEV of the sterilizer unit routed to a vacuum pump?	
Enter the temperature at stack outlet (Fahrenheit)	Enter the exhaust velocity at stack outlet (feet/second)	Enter the volumetric flow rate at stack outlet (cubic feet/second)	Enter the latitude of stack. Specify to the <u>6th</u> decimal point	Enter the longitude of stack. Specify to the <u>6th</u> decimal point	Select from the dropdown menu in this column If your answer is "Yes" in any row below, fill out Table 5
					Yes (fill out E-134 through E-143)
					Yes (fill out E-134 through E-143)
					Yes (fill out E-134 through E-143)

Yes	No (skip to E-75)	No (skip to E-81)	
Yes	No (skip to E-75)	No (skip to E-81)	

Yes (fill out E-82 through E-107)	SC-3	Dry-bed scrubber
Yes (fill out E-82 through E-107)	SC-3	Dry-bed scrubber

1290.17			
1382.83			

Galvanized Steel	200.00	0.03	Circular (fill out E- 89 & E-93 as	18.00
Galvanized Steel	200.00	0.03	appropriate) Circular (fill out E- 89 & E-93 as appropriate)	18.00

	No (fill out respective fields)	22.00	14.00	
	No (fill out respective fields)	22.00	14.00	

	2019	75.00		
	2019	75.00		

Yes (fill out E-107)				
,				
Yes (fill out E-107)				
		***************************************	***************************************	

		SC-3	
		SC-3	

	Chamber 4	No (skip to E-133)		
	Circuit Circ	110 (5111)		
1	Chamber 5	No (skip to E-133)		
	Charlioth 5	110 (5111) 10 2 250)		
	Chamber 6	No (skip to E-133)		
	Chamber 0	140 (3Kip to £ 155)		
	Chamber 7	No (skip to E-133)		
	Chamber 7	140 (3KIP to E-155)		
1	Chamber 8	No (skip to E-133)		
	Chambel 6	140 (2KIH (0 E-122)		
1	Chamber 9	N - /-l-:- + - E 422\		
	Chamber 9	No (skip to E-133)		
	el 1 40	N / I' : 5 400\		
	Chamber 10	No (skip to E-133)		
-				

Table 5. Vacuum Pumps

Field #	E-134	E-135	
Data	Unit ID of vacuum	Associated sterilizer unit ID(s) and vent(s)	
	pump		
nstruction	Enter from permit	Enter ID(s) of the sterilines unit(s) associated with this vacuum numer if many	Specific make of
nstruction		Enter ID(s) of the sterilizer unit(s) associated with this vacuum pump. If more	Specify make of
	description, if	than one sterilizer unit is serviced by the vacuum pump, list all the sterilizer unit	pump
	available.	IDs separated by commas. Also specify which vents on the sterilizer unit are	
	Otherwise, use a	routed to the vacuum pump. For example: "SC-1 (SCV, CEV)"	
	unique identifier		
	for each pump		

			***************************************	***************************************
***************************************	***************************************	wnnoonnnoonnnoonnnoonnnoonnnoonnnoonnn	***************************************	***************************************
***************************************	***************************************	***************************************	***************************************	~~~~

E	-136	E-137	E-138	E-139	
Basic information of vacuum pump		Seal type of vacuum pump	Capacity of vacuum pump	Year in which the vacuum pump was installed	
Specify <u>model</u> of pump	Specify type of pump. Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	(cubic feet per minute, cfm)	Enter the calendar year	

				,		
**************************************		***************************************		***************************************	***************************************	***************************************
	***************************************	***************************************			***************************************	***************************************
						
						
)		I	I	L	

E-140	E-141 Capital cost of the vacuum pump		E-142 Annual cost of the vacuum pump		E-1 Handling and disposal of water	
Expected lifetime of the vacuum pump						
concentration monitor	Enter the dollar amount in this column	Specify the dollar year in this column	Enter the dollar amount in this column		If you selected "once-through" as the type description about how water is handled a	
(years)						

·			 ·		
		***************************************	 ***************************************	***************************************	
***************************************	***************************************	***************************************	 	***************************************	

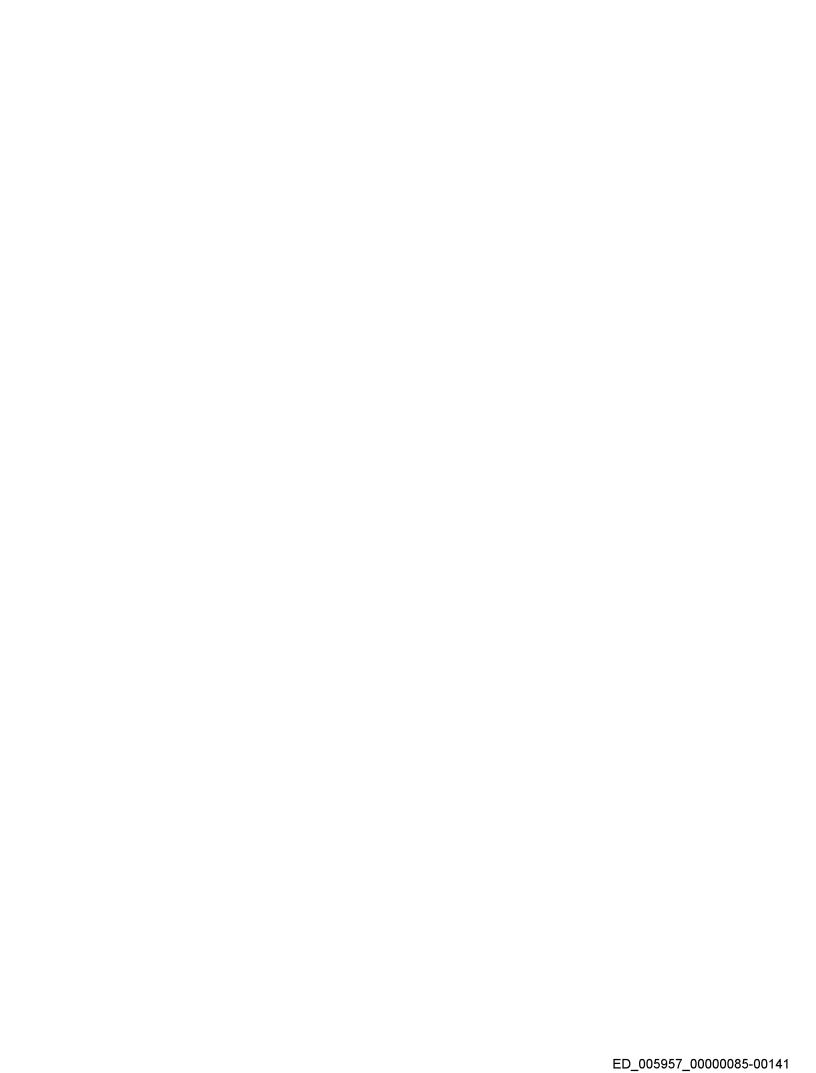
13			
or once-thro			
e of vacuum ind disposed	pump,		

***************************************		***************************************	***************************************	***************************************		***************************************
***************************************						***************************************
1	1		I		l	

			Yes (fill out E-134
			through E-143)
			Yes (fill out E-134
			through E-143)
			,
			Yes (fill out E-134
			through E-143)
			Yes (fill out E-134
			through E-143)
			Yes (fill out E-134
			through E-143)
			Yes (fill out E-134
			through E-143)
			,
			Yes (fill out E-134
			through E-143)
			,
***************************************	 	***************************************	 ***************************************













Response	Chamber 1 Vacuum	Chamber 1 SCV	Travaini
	Pump		
	Chamber 2 Vacuum	Chamber 2 SCV	Travaini
	Pump		
	Chamber 3 Vacuum	Chamber 3 SCV	Travaini
	Pump		
	Chamber 4 Vacuum	Chamber 4 SCV	Travaini
	Pump		
	Chamber 5 Vacuum	Chamber 5 SCV	Travaini
	Pump		
	Chamber 6 Vacuum	Chamber 6 SCV	Travaini
	Pump		
	Chamber 7 Vacuum	Chamber 7 SCV	Travaini
	Pump		
	Chamber 8 Vacuum	Chamber 8 SCV	Travaini
	Pump		
	Chamber 9 Vacuum	Chamber 9 SCV	Travaini
	Pump		
	Chamber 10	Chamber 10 SCV	Travaini
	Vacuum Pump		

			······································

TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004
TRHC 80-600	Once-through	Wet seal with oil	500.00	2004

5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in
5.00			Water output is very minum and is out in

***************************************	 	 ***************************************	
		<u> </u>	

to	а	holding t	ank for disposal
to	а	holding t	ank for disposal
to	а	holding t	ank for disposal
to	а	holding t	ank for disposal
to	а	holding t	ank for disposal
to	а	holding t	ank for disposal
to	а	holding t	ank for disposal
to	а	holding t	ank for disposal
to	а	holding t	ank for disposal
to	а	holding t	ank for disposal

















Ethylene Oxide (EtO) Commercial Sterilization CAA Section 114 Survey

I I UCK DATA TO TATUUT TO INTRODUCTION TON		
Luck nere to return to miropuction top I		

F. Aeration

Table 1. Aeration that Occurs in Separate Unit (Aeration Room & Aeration Cell/Chamber)

Field #	F-1	F-2	F-3	F-4	F-5
Data	Aeration unit ID	Associated EIS release point ID	Type of aeration unit	Does the aeration unit use accelerated aeration?	Characteristics of accelerated aeration
Instruction	Enter from permit description, if available. Otherwise, use a unique identifier for each aeration unit	Enter the EIS release point ID associated with the aeration unit, if any	this column	Select from the dropdown menu in this column	Select from the dropdown menu in this column
Response	Degas 11		Aeration room	No (skip to F-6)	

Table 2. Aeration that Occurs within Sterilizer Chamber If no data is auto-populated in Field E-1 of this table, skip to Table 3

Field # E-1 F-43 F-44 Data Sterilizer unit ID Temperature Relative humidit	
Data Sterilizer unit ID Temperature Relative humidit	
	У

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right → If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document



F-6				F-7		F-
Dimensions of aeration cell/chamber (<u>For aeration cell/chamber only.</u> Dimensions of aeration rooms should already have been provided in Room Area tab)			Temperature		Relative I	
Enter the <u>height</u> of aeration unit (feet)	Enter the <u>width</u> of aeration unit (feet)	Enter the <u>length</u> of aeration unit (feet)	Enter the <u>average</u> temperature of aeration room when in operation (Fahrenheit)	Enter the maximum temperature of aeration room when in operation (Fahrenheit)	Enter the minimum temperature of aeration room when in operation (Fahrenheit)	Is a specific humidity needed for aeration? Select from the dropdown menu in this column
11.00	11.50	57.00	120.00	130.00	110.00	No (skip to F-9)

F-45	F-46
Pressure	Length of time that products are being held in aeration
	room before being transferred

8	F-9 F-10		F-10	F-11
numidity	Pressure (For aeration cell/chamber only)		Pressure drop (For aeration room only)	Facial velocity (For aeration room only)
If yes, enter the specific humidity that is needed for aeration (percent)	Enter the average pressure within the unit (psig)	Enter the pressure drop across aeration room (inch H2O) (you may choose to fill out either F-10, F-11, or both)	Specify definition of pressure drop, or locations based on which pressure drop is measured (e.g., farthest point to inlet of control device)	Enter the facial velocity in aeration room (feet per minute, fpm) (you may choose to fill out either F-10, F-11, or both)
				260.00

F-12		F-13			
Location and length of time that sterilized product is placed in aeration room area before being placed in the aeration chamber	Length of time that product is being held in aeration unit before being transferred				
Provide details on where the sterilized product is placed in the aeration room area (e.g., placed in hallway area outside door of aeration chamber), and the length of time the sterilized product sits in the aeration room area before being placed in the aeration chamber	Enter the <u>average</u> length of time that products are being held in aeration room (hours)	maximum length	Enter the minimum length of time that products are being held in aeration room (hours)		
The poduct is unloaded from the sterilization chamber and immediately placed into the aeration room.	40.00	72.00	12.00		

F-14	F-15	F-16	F-17
Are leak checks performed on aeration unit?	Frequency of leak checks for aeration unit	Average length of time to perform a leak check	
Select from the dropdown menu in this column	Specify the frequency of leak checks for sterilizer chamber	Enter average length of time to perform a leak check (minutes)	Provide a brief description of the leak check procedure(s) for
Yes	Anually	240.00	The aeration rooms we use are sealed rooms (able to hold 30 garage doors on either side. A piece of tubing is inserted under Then a manometer is used to verify the room is under a negative control of the control of the room is under a negative control of the co

		F-18		F-20		
	Annual cost of leak checks for aeration unit		Average quantity of leaks identified per year	Repair method/procedure for the leaks identi		
aeration unit	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter average quantity of leaks found per year	Provide a brief description of the repair method/procedure for identified		
pallets) with er one of the doors tive pressure and	5.		0.00	Repair exhaust motor/fan, adjust damper.		

	F-	21	F-22	F-23	
fied		r repair for leaks tified	Is aeration room vent (ARV) routed to any control device?		APCD 1 for aeration room vent (ARV)
ir the leaks	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Select from the dropdown menu in this column	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"
			Yes (fill out F-23 through F-39)	SC-1	Dry-bed scrubber

		F-24		F-25	F-26
		APCD 2 for aeration room vent (ARV) (if a	ny)	Material of duct work for aeration room vent (ARV)	Total length of duct work for aeration room vent (ARV)
Enter the <u>average</u> air flow routed from the vent to this APCD (actual cubic feet per minute, acfm)	APCD ID. Enter from permit description, if available. Otherwise, use a unique identifier for each APCD	Select from the dropdown menu in this column If you select "Other (double click to specify)", be sure to type your entries between the parentheses "()"	Enter the average air flow routed from the vent to this APCD (actual cubic feet per minute, acfm)	Specify the material of duct work	Enter the <u>total</u> length of duct work (feet)
1170.00				Galvanized Steel	37.00

F-27	F-28	F-29	F-30	F-31	F-32	F-:
Average thickness of duct work for aeration room vent (ARV)	Is the cross section of duct work for aeration room vent (ARV) circular or rectangular?	work	height of duct work	Cross-sectional width of duct work (For rectangular duct work only)	Are the dimensions of duct work constant throughout?	Diameter o (For circular di
Enter the average thickness of duct work (feet)	• • • • • • • • • • • • • • • • • • •	Enter the <u>average</u> diameter of duct work (feet)	Enter the <u>average</u> cross-sectional height of duct work (feet)	Enter the <u>average</u> cross-sectional width of duct work (feet)	Select from the dropdown menu in this column	Enter the maximum diameter of duct work (feet)
0.03	Circular (fill out F-29 & F-33 as appropriate)	2.83			No (fill out respective fields)	4.50

33	F-	-34	F	-35	F-36	F-37
f duct work uct work only)		eight of duct work r duct work only)	Cross-sectional width of duct work (For rectangular duct work only)		Year in which duct work was installed	Expected lifetime of duct work
Enter the minimum diameter of duct work (feet)	Enter the maximum cross-sectional height of duct work (feet)	Enter the minimum cross-sectional height of duct work (feet)	maximum cross-	Enter the minimum cross- sectional width of duct work (feet)	Enter the calendar year	Enter the expected lifetime of duct work (years)
1.17					2004	75.00

F-	38	F-	39	F-40		
aeration roo	f duct work for m vent (ARV) I or actual)	aeration roo	of duct work for m vent (ARV) d or actual)	Stack ID to which the aeration room vents (ARV) is routed to (for uncontrolled ARV only)		
Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter from permit description, if available. Otherwise, use a unique identifier for each stack	Enter the stack height (feet)	Enter the stack diameter (feet)

F-41		F-42			
Stack parameter runcontrolled ARV only)			Stack coordinates (for uncontrolled ARV only)		
Enter the temperature at stack outlet (Fahrenheit)	Enter the <u>exhaust</u> <u>velocity</u> at stack outlet (feet/second)	Enter the volumetric flow rate at stack outlet (cubic feet/second)	Enter the latitude of stack. Specify to the <u>6th</u> decimal point	Enter the longitude of stack. Specify to the <u>6th</u> decimal point	
•					

Instruction	This column will be auto-populated based on your entries in the previous fields	Enter the <u>average</u> temperature of aeration room when in operation (Fahrenheit)	Enter the maximum temperature of aeration room when in operation (Fahrenheit)	Enter the minimum temperature of aeration room when in operation (Fahrenheit)	Is a specific humidity needed for aeration? Select from the dropdown menu in this column	
Response						

Table 3. Movement of Sterilized Products through the Facility

 $Describe\ how\ sterilized\ product\ is\ moved\ from\ one\ area\ of\ the\ facility\ to\ another.\ For\ each\ product\ move\ through\ the\ facility\ provide\ described by$

placed, (3) distance product is moved, and (4) note any areas where there is a hood to collect the EO

Field #	Data	Instruction	
F-47	From sterilizer chamber to aeration	Provide details on where the sterilized product is placed in	The product is remo
F-48	From aeration room/chamber to	Provide details on where the sterilized and aerated product	After the aeration p
	warehouse area	is placed after being removed from aeration chamber,	any open location in
		length of time the sterilized and aerated product sits after	feet. Products sit on
		being removed from aeration room, and distance the	a deviation from cus
		sterilized and aerated product is moved to warehouse area	
F-49	At warehouse area	Provide details on length of time sterilized and aerated	Shipping varies base

Specify pressure condition during aeration process	Enter the <u>average</u> length of time that products are being held in aeration room (hours)	Enter the maximum length of time that products are being held in aeration room (hours)	Enter the minimum length of time that products are being held in aeration room (hours)

etails on the following variables: (1) length of time that product sits, (2) where the product is

Response

ved from the chamber directly to the Aeration Room immediately after sterilization is complete.

ocess is complete, the product is placed in the warehouse immediately. The product will move to the warehouse shipping area. The average estimated distance for this transfer is approximately 295 the warehouse floor for approximately 1 to 10 days depending on the customer shipping. If there is tomer specifications or other issue it could be multiple weeks.

d on customer. Products sit on the warehouse floor for approximately 1 to 10 days depending on













Ethylene Oxide (EtO) Commercial Sterilization CAA Section 114 Survey

G. Summary of Air Pollution Control Devices

Table 1. APCD Characteristics

If an APCD exhausts to more than one stack, provide the information requested in Fields G-5 through G-7 for each additional stack in Addit.

Field #	G-1	G-2	G-3			
Data APCD ID	APCD ID Type of APCD		Associated EIS release point ID	Descrip		
Instruction	This column will be auto- populated based on your entries in the previous fields	This column will be auto-populated based on your entries in the previous fields	Enter the EIS release point ID associated with this APCD, if any	Specify the manufacturer of APCD	Specify the model of APCD	
Response	WS-1	Wet scrubber		Croll Reynolds	82079/A10596	
	SC-2	Dry-bed scrubber		Advanced Air Technologies	Safe Cell II	
	SC-3	Dry-bed scrubber		Advanced Air Technologies	Safe Cell II	
	SC-1	Dry-bed scrubber		Advanced Air Technologies	Safe Cell II	

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right → If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document

Yes

ional Information tab (Section M)

ional Information tab (Section M)		G-5		G-6		
on of APCD		Stack ID to which the APCD vents				
Enter the <u>value</u> of maximum capable	Specify the <u>unit</u> of maximum capable volumetric flow of APCD	Enter from permit description, if available. Otherwise, use a unique identifier for each stack	Enter the stack height (feet)	Enter the stack diameter (feet)	Enter the temperature at stack outlet (Fahrenheit)	Enter the exhaust velocity at stack outlet (feet/second)
1000.00	cfm	EPN-1	60.00	4.00	85.00	66.31
12000.00	cfm	EPN-1	60.00	4.00	85.00	66.31
4000.00	cfm	EPN-1	60.00	4.00	85.00	66.31
52000.00	cfm	EPN-1	60.00	4.00	85.00	66.31

	G-7		G-8	G-9	G-10	
	Stack coordinates		Year in which APCD was installed	Expected lifetime of APCD	Capital cost of APCD	
Enter the volumetric flow rate at stack outlet (cubic feet/second)		Enter the longitude of stack. Specify to the <u>6th</u> decimal point		Enter the expected lifetime of APCD (years)	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column
833.33	27.620501	-99.504663	2004	70.00		
833.33	27.620501	-99.504663	2019	70.00		
833.33	27.620501	-99.504663	2019	70.00		
833.33	27.620501	-99.504663	2019	70.00		

G-11		G-1.	G-13			
	cost of APCD	Other one-time costs of APCD			Annual monitoring	
Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	If any, specify other one-time costs of APCD (e.g., programming a data acquisition system)	Enter the <u>total</u> dollar <u>amount</u> in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	

	G-14		G-15			
g cost of APCD	Annual repair and routine maintenance cost of APCD		Other annual costs of APCD			
Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Describe other annual costs of APCD	Enter the <u>total</u> dollar <u>amount</u> in this column	Specify the dollar <u>year</u> in this column	
			Electric Electric			
			Electric			
			Electric			

G-16			G-17		
Is a balancer/snubber system used to moderate EtO concentration before the gas stream enters the control device (e.g., a water bath that absorbs EtO)?	Performance test performed in t				
Select from the dropdown menu in this column	Specify the dates of any performance test performed for each APCD in the last 5 years (mm/dd/yyyy). If there are multiple dates, separate by commas	Enter the <u>average</u> dollar <u>amount</u> for each performance test in this column	Specify the dollar <u>year</u> in this column		
No No					
1.0					
No					
No					

	G-18
he last 5 years (if any)	How does the APCD handle variability in flow rate and c parameters?
Provide a copy of each performance test performed in the last 5 years <u>in its entirety</u> for each APCD	Provide a brief description about how the APCD handles varia and other relevant parameters
	This APCD is designed/tested for worse case conditions
	This APCD is designed/tested for worse case conditions
	This APCD is designed/tested for worse case conditions
	This APCD is designed/tested for worse case conditions
Attach all requested documents in the "Attachments" tab	

other relevant
bility in flow rate
,

			000000000000000000000000000000000000000

Table 2. Emissions and CEMS

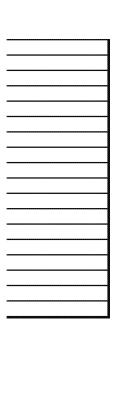
Field #	G-1	G-2	G-19	G	
Data Instruction	APCD ID	Type of APCD	Peak hourly emission rate of APCD	Is any contin monitoring syst measure EtO con Al	
	This column will be auto- populated based on your entries in the previous fields	This column will be auto-populated based on your entries in the previous fields	Enter the <u>value</u> of specify the <u>unit or peak hourly</u> peak hourly emission rate		
Response	WS-1	Wet scrubber		No (ski	
	SC-2	Dry-bed scrubber	0.50 ppm	No (ski	
	SC-3	Dry-bed scrubber	0.50 ppm	No (ski	
	SC-1	Dry-bed scrubber	0.50 ppm		
		1		1	

-20	G-21							
ious emissions m (CEMS) used to entration from the CD?	Description of the CEMS used to measure EtO concentration from the APCD							
	Enter the <u>type</u> of CEMS	Enter the manufacturer of CEMS	Enter the <u>model</u> of CEMS	Specify the <u>method</u> of detection of CEMS	Enter the <u>value</u> of detection level of CEMS			
to G-28) to G-28) to G-28)	Gas	Mocon-Baseline	Series 8900	PID	0.04			
	Chromatograph							

	G-23	j ,	5-24	U	-25
Year in which the CEMS was installed	Expected lifetime of the CEMS	Capital cost of the CEMS used to measure EtO concentration from the APCD		Installation cost of the CEMS used to measure EtO concentration from the APCD	
Enter the calendar year	Enter the expected lifetime of the CEMS (years)	Enter the dollar amount in this column	Specify the dollar year in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column
2018	5.00				
	installed Enter the calendar year	installed Enter the calendar year lifetime of the CEMS (years)	Enter the calendar year Enter the expected lifetime of the CEMS (years) CEMS (years)	Enter the calendar year Enter the expected lifetime of the CEMS (years) CEMS (years) APCD Specify the dollar amount in this column	installed Enter the calendar year Enter the expected lifetime of the CEMS (years) CEMS (years) Enter the dollar amount in this column CEMS (years) Enter the dollar year in this column column Enter the dollar year in this column Enter the dollar year in this column

G-	-26	G-27	
Annual cost of the CEMS used to measure EtO concentration from the APCD		Standards or work practices followed for the CEMS used to measure EtO concentration from the APCD	Engineering o
Enter the dollar <u>amount</u> in this column	Specify the dollar <u>year</u> in this column	Provide a brief description of any standards or work practices followed for the CEMS used to measure EtO concentration from the APCD	Specify the dates of or non-regulatory er performed for each 5 years (mm/dd/yyy multiple dates, sepa
		The gas chromatograph monitors the outlet concentration of the safe cell system monthly to ensure it is under a concentration of 1ppm	

	G-28		
r non-regulatory	emission test perfo	rmed in the last 5	years (if any)
any engineering nission test APCD in the last y) . If there are rate by commas	Enter the <u>average</u> dollar <u>amount</u> for each engineering emission test in this column	Specify the dollar <u>year</u> in this column	Provide a copy of each engineering or non-regulatory emission test performed in the last 5 years in its entirety for each APCD



	<u> </u>	
l		

	,	·	~	
			-	

	Attach all
	requested
	documents in the
	"Attachments" tab
1	





Ethylene Oxide (EtO) Commercial Sterilization CAA Section 114 Survey

H. Details of Air Pollution Control Devices

Table 1. Wet Scrubber & Glygen Absorber Unit

Field #	G-1	H-1
Data	APCD ID	Design and operation specifications
Instruction		Provide a brief description of the design and key operation specifications of the wet scrubber/glygen absorber unit
Response	WS-1	This is a wet scrubber system consisiting of two packed towers and reactor tanks. As ethylene oxide enters this system it is drawn up through the tower packing and makes contact with a water-sulfuric acid scrubbing solution which absorbs

Table 2. Dry-bed Scrubber

Field #	G-1	H-12
Data	APCD ID	Design and operation specifications
Instruction	This column will be auto-populated based on your entries in the previous fields	Provide a brief description of the design and key operation specifications of the dry-bed scrubber
Response	SC-2	Air is drawn out from the chamber exhaust vents and into the Safe Cell sytem. As
	SC-3	Air is drawn out from the chamber exhaust vents and into the Safe Cell sytem. As

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right \rightarrow If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document

H-2		H-3
Ethylene glycol (EG) generated annually	Ethylene glycol (EG) tank ID(s) to which wet scrubber/glygen absorber unit feeds
Enter the <u>amount</u> in this column	Specify the <u>unit</u> in this column	Specify the EG tank ID(s) each wet scrubber/glygen absorber unit feeds EG to, if applicable. Ensure that any tank ID entered in this field is <u>consistent with your entries in Field D-1</u> in the EtO & EG Storage tab. List all applicable EG tank IDs separated by commas
157043.00	gallons	Storage Tank 1, Reactor Tank 1, Reactor Tank 2

H-13	H-14	H-15	H-16	H-17
Type of media/sorbent used	Volume of media/sorbent	Year in which current media/sorbent was installed	Expected lifetime of media/sorbent	Can the media/sorbent be regenerated?
Specify the type of media/sorbent used for the dry-bed scrubber	Enter the volume of media/sorbent within the dry-bed scrubber (cubic feet)	current media/sorbent was	lifetime of the media/sorbent	Select from the dropdown menu in this column
Safe Cell II Reactant Media	144.00	2019	0.25	No (skip to H-20)
Safe Cell II Reactant Media	48.00	2019	0.25	No (skip to H-20)



H-4		H-5	
Ethylene glycol (EG) disposal	Annual cost of ethylene glycol (EG) disposal		Process/APCD
Provide a brief explanation of how ethylene glycol is disposed (e.g., municipal sewer, industrial sewer, manufacturer pickup, etc.)	Enter the dollar amount in this column		Provide a brief descr scrubber/glygen abs sorbent material are
Manufacturer pickup			The flow of scrubbin differential pressure and pH of the solution

	Average cost of regenera			
	What <u>method</u> is used to regenerate the media/sorbent, if applicable?	How many times is the media/sorbent regenerated prior to disposal, if applicable?	To what removal efficiency is the media/sorbent restored after regeneration? (percent)	Enter the dollar amount in this column

H-6				H-7
monitoring plan for wet scrubber/glygen absorber unit	it Parameter 1 monitored for wet s			wet scrubber/glygen a
iption of the process/APCD monitoring plan for the wet orber unit. Specify if measurements of the gas stream or part of these plans	<u>Name</u> of Parameter 1	<u>Set value</u> of Parameter 1	<u>Unit</u> of Parameter 1	Monitoring frequency of Parameter 1
g solution through the towers is monitored daily. The tower s are monitored daily. The ethylene glycol concentration on are monitored weekly.	Solution Flow	60.00	minimum gallons per minute	daily

19 3 media/sorbent	H-20 H-21 Sorbent disposal Annual cost of sorbent disposal		Is the media/sorb	H-22 ent activity monitore	
ion event					way?
Specify the dollar year in this column	Specify how sorbert is disposed (e.g., hazardous waste landfill, MSW landfill, etc.)	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Select from the dropdown menu in this column	If yes, provide a brie
	MSW landfill			Yes	We monitor the am
	MSW landfill			Yes	We monitor the amo

				H-8		
bsorber unit	Parameter 2 monitored for wet scrubber/glygen absorber unit (if any)					
Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 1	Name of Parameter 2	Set value of Parameter 2	Unit of Parameter 2	Monitoring frequency of Parameter 2	Explain any <u>corrective</u> readings outside the Parameter 2	
maintenance for the feed pumps	Tower differential pressure	17.00	maximum inches of water gauge	daily	unclogging and clear eliminator and packi	

	H-23	H-24
d or tested in any	Is the media/sorbent change out done based on manufacturer suggestion?	Process/APCD monitoring plan for dry-bed scru
f description in this		Provide a brief description of the process/APCD monitoring pl
	select "No", be sure to enter a brief explanation	scrubber. Specify if measurements of the gas stream or sorbe
	between the parentheses "()"	of these plans
ount of ethylene	Yes	This system was recently installed and defined monitoring ins
ount of ethylene	Yes	This system was recently installed and defined monitoring ins

	H-9 Parameter 3 monitored for wet scrubber/glygen absorber unit (if any)				
<u>re actions</u> taken for limit(s) for	Name of Parameter 3	Set value of Parameter 3	<u>Unit</u> of Parameter 3	Monitoring frequency of Parameter 3	Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 3
ning the mist ng materials	Ethylene Glycol Concntration (Percentage)	45.00	maximum percent	weekly	A quantity of the solution in the reactor tanks is pumped to a storage tank. Water is added to the reactor tank to

ıbber	H-25 Parameter 1 monitored for dry-bed scrubber				
an for the dry-bed nt material are part	<u>Name</u> of Parameter 1	Set value of Parameter 1	Unit of Parameter	Monitoring frequency of Parameter 1	Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 1
tructions have not tructions have not					

		H-	10		H-
	Parameter 4 mo	onitored for wet scr	ubber/glygen a	bsorber unit (if any)	Monitoring re scrubber/glys unit from the ve
<u>Name</u> of Parameter 4	<u>Set value</u> of Parameter 4	<u>Unit</u> of Parameter 4	Monitoring frequency of Parameter 4	Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 4	Provide all mor records from th calendar year
pH	2.00	maximum pH level	weekly	A quantity of the solution in the reactor tanks is pumped to a storage tank. Water is added to the reactor tank to	Attach all documer
					accumer "Attachm

	Paramete	Her 2 monitored fo	-26 or dry-bed scrub	ber (if any)	
Name of Parameter 2	<u>Set value</u> of Parameter 2	Unit of Parameter 2	Monitoring frequency of Parameter 2		Name of Parameter 3

cords for wet gen absorber last calendar ar nitoring ne last

requested its in the ents" tab

Param	eter 3 monitore	ed for dry-bed so	rubber (if any)		Param	eter 4 monitor
Set value of Parameter 3	Unit of Parameter 3	Monitoring frequency of Parameter 3	Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 3	Name of Parameter 4	Set value of Parameter 4	<u>Unit</u> of Parameter 4

H-28		H-29				
for dry-bed scrubber (if any)		Monitoring records for dry-bed scrubber from the last calendar year				
Monitoring frequency of Parameter 4	Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 4	Provide all monitoring records from the last calendar year				

SC-1	Air is drawn out from the aeration rooms and into the Safe Cell sytem. As air enters this system it passes through the Safe Cell II Reactant Media whch is housed in mutliple Safe Cell DR-490 units. The ethylene oxide is irreversibly reacted on the surface of the reactant media and clean air is discharged from the unit. The Safe Cell system at Midwest Sterilization Corporation Laredo consits of 26 individual Safe Cell DR-490 units.

Table 3. Catalytic Oxidizer & Balancer/Abator

Field #	G-1	H-30
Data	APCD ID	Design and operation specifications
Instruction	This column will be auto-populated based on your entries in the previous fields	Provide a brief description of the design and key operation specifications of the catalytic oxidizer or balancer/abator
Response		

Safe Cell II Reactant Media	624.00		0.25	No (skip to H-20)
		2010		
		2019		
		***************************************	***************************************	
	1			

H-31	H-32	H-33	H-34	H-35
Type of catalyst	Volume of catalyst	Year in which current catalyst was installed	Expected lifetime of catalyst	Operating temperature of catalyst bed
Specify the type of catalyst used in catalytic oxidizer	(cubic feet)	Enter the calendar year in which the current catalyst was installed	Enter the expected lifetime of the catalyst used (years)	Enter the operating temperature of catalyst bed (Fahrenheit)

H-36 Annual natural gas usage to maintain the operating temperature		H	-37		H-38	H-39
		Annual cost of natural gas used by the catalytic oxidizer		Annual cost of electricity used by the catalytic oxidizer or balancer/abator		Can the catalyst be regenerated?
Enter the <u>amount</u> n this column	Specify the <u>unit</u> in this column	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	Enter the dollar amount in this column	Specify the dollar year in this column	Select from the dropdown menu in this column

MSW landfill			Yes	We monitor the amo
				oxide passing throug
	Barrer and the second s	Nonemanne and a second a second and a second		

	H-40			H- Average cost of a ca	
Catalyst renegeration					
How frequently is he catalyst egenerated, if applicable?	What method is used to regenerate the catalyst, if applicable?	How many times is the catalyst regenerated prior to disposal, if applicable?	To what removal efficiency is the catalyst restored after regeneration? (percent)	Enter the dollar amount in this column	

Yes	The air stream exiting this scrubbing system is monitored mor
	complaince with 40CFR63 requirements.

41	H-42 H-43		H-4	
talyst regeneration ent	Catalyst disposal	Annual cost o	f catalyst disposal	Process/APCD monitoring plan for ca
Specify the dollar year in this column	Specify how catalyst is disposed (e.g., hazardous waste landfill, MSW landfill, etc.)	Enter the dollar amount in this column	Specify the dollar year in this column	Provide a brief description of the process catalytic oxidizer or balancer/abator. Spe or sorbent material are part of these plar

nthly to ensure	Ethylene Oxide	1.00	maximum ethylene	monthly until the	If the concentration exceeds 0.75 ppm,
	Outlet		oxide	concentration is at	a procedure using the process of
	Concentration		concentration in	or above 0.5ppm.	elimination will be implemented to
			parts per million	Monitoring is	identify the specif units in the scrubbing
				performed weekly	system requiring further assessment.
				when	Thes indivudal units will be serviced to
				cocentrations are	reduce the outlet concentrations.
				between 0.5 and	
				0.75ppm. Weekly	
				monitoring is	
				conducted if	
				concentrations are	
				above 0.75ppm.	

stalytic oxidizer or balancer/abator		Parameter 1 monitored for catalytic oxidizer & balancer/abator					
/APCD monitoring plan for the cify if measurements of the gas stream is	<u>Name</u> of Parameter 1	Set value of Parameter 1	<u>Unit</u> of Parameter 1	Monitoring frequency of Parameter 1	Explain any <u>corrective</u> readings outside the Parameter 1		

	H-46 Parameter 2 monitored for catalytic oxidizer & balancer/abator (if any)						
<u>e actions</u> taken for limit(s) for	Name of Parameter 2	<u>Set value</u> of Parameter 2	<u>Unit</u> of Parameter 2	Monitoring frequency of Parameter 2	Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 2		

	harron and the second		hanna and a same and a same and a same and a same a sa

			H-47			
	Parameter 3 mc	initored for cata	llytic oxidizer &	balancer/abator (if any)		Parameter 4 n
<u>Name</u> of	Set value of	<u>Unit</u> of	Monitoring	Explain any corrective actions	Name of	Set value of
Parameter 3	Parameter 3	Parameter 3	frequency of Parameter 3	taken for readings outside the limit(s) for Parameter 3	Parameter 4	Parameter 4
***************************************		***************************************	•••••••••••			•••••••••••••••••••••••••••••••••••••••
***************************************		***************************************	***************************************			***************************************

	Attach all requested documents in the "Altachments" tab

	H-48		H-49
onitored for c	atalytic oxidizer	& balancer/abator (if any)	Monitoring records for catalytic oxidizer & balancer/abator from the last calendar year
<u>Unit</u> of Parameter 4	Monitoring frequency of Parameter 4	Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 4	Provide all monitoring records from the last calendar year
			Attach all requested documents in the
			*Altachmenis" tab

Table 4. Thermal Oxidizer

Field #	G-1	H-50
Data	APCD ID	Design and operation specifications
Instruction	This column will be auto-populated based on your entries in the previous fields	Provide a brief description of the design and key operation specifications of the thermal oxidizer
Response		

Table 5. Other APCDs

Field #	G-1	H-61
Data	APCD ID	Design and operation specifications
Instruction	This column will	Provide a brief description of the design and key operation specifications of the
	be auto-	APCD
	populated based	
	on your entries in	
	the previous	
	fields	
Response	Heigs	
•		

H-51	H-52	Н	-53		H-54
Average operating temperature	Operating temperature records for thermal oxidizer from the last calendar year				
Enter the average operating temperature of thermal oxidizer (Fahrenheit)	Provide the operating temperature records for thermal oxidizer from the last calendar year	Enter the <u>amount</u> in this column	Specify the <u>unit</u> in this column	Enter the dollar amount in this column	Specify the dollar year in this column
	Attach all requested documents in the "Attachments" tab				

H-62		
Process/APCD monitoring plan for APCD		
Provide a brief description of the process/APCD monitoring plan for the APCD. Specify if measurements of the gas stream or sorbent material are part of these	Name of Parameter	Set value of Parameter 1
plans		

H-55			
Process/APCD monitoring plan for thermal oxidizer			Parameter 1 monito
rovide a brief description of the process/APCD monitoring plan for the	Name of Parameter	Set value of	<u>Unit</u> of Parameter
hermal oxidizer. Specify if measurements of the gas stream are part of these	1	Parameter 1	1
llans			

Parameter 1 mon				,	Parameter 2 monit
<u>Jnit</u> of Parameter	Monitoring	Explain any corrective actions taken	Name of Parameter	<u>Set value</u> of	<u>Unit</u> of Parameter
L	frequency of	for readings outside the limit(s) for	2	Parameter 2	2
	Parameter 1	Parameter 1			
***************************************				***************************************	

				••••••	

56 d for thermal oxi	dizer		ſ	Parameter 2 monitore	H-57 d for thermal oxidi
Monitoring frequency of Parameter 1	Explain any <u>corrective actions</u> taken for readings outside the limit(s) for Parameter 1	<u>Name</u> of Parameter 2	<u>Set value</u> of Parameter 2	Unit of Parameter 2	Monitoring frequency of Parameter 2

64					H-65
red for APCD (if an	y)			Parameter 3 mon	itored for APCD (if an
Monitoring	Explain any corrective actions taken for	Name of	Set value of	<u>Unit</u> of Parameter	Monitoring
frequency of	readings outside the limit(s) for	Parameter 3	Parameter 3	3	frequency of
Parameter 2	Parameter 2				Parameter 3

]			

				H-58	
(if any)			Parameter 3 monitor	ed for thermal oxid	dizer (if any)
Explain any <u>corrective actions</u> taken for	Name of	Set value of	<u>Unit</u> of Parameter	Monitoring	Explain any <u>correctiv</u>
readings outside the limit(s) for Parameter 2	Parameter 3	Parameter 3	3	frequency of Parameter 3	readings outside the Parameter 3
					

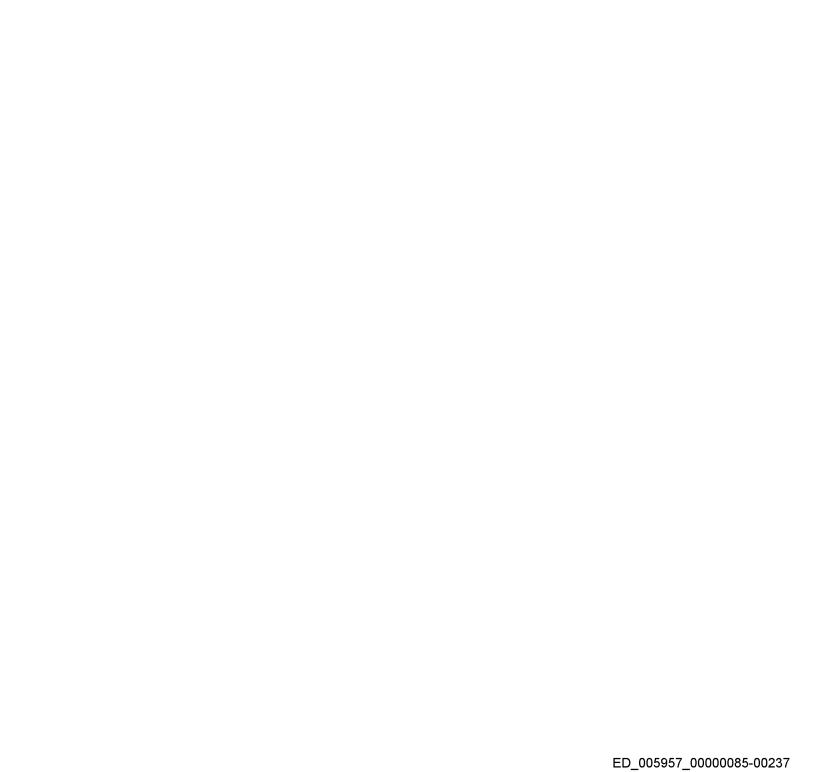
				H-66				
y)	Parameter 4 monitored for APCD (if any)							
Explain any corrective actions taken for	Name of	Set value of	<u>Unit</u> of Parameter	Monitoring	Explain any correctiv			
readings outside the limit(s) for Parameter 3	Parameter 4	Parameter 4	4	frequency of Parameter 4	readings outside the Parameter 4			
	J							

				H-59	
	Parameter 4 monitored for thermal oxidizer (if any)				
<u>re actions</u> taken for	Name of	Set value of	Unit of Parameter	Monitoring	Explain any <u>corrective actions</u> taken for
limit(s) for	Parameter 4	Parameter 4	4	frequency of Parameter 4	readings outside the limit(s) for Parameter 4

<u>re actions</u> taken for limit(s) for	H-67 Monitoring records for APCD Provide all monitoring records from the last calendar year
	Attach all requested documents in the "Attachments" tab

Monitoring records for thermal oxidizer
from the last calendar year
Provide all monitoring records from the
last calendar year
Attach all requested documents in the
"Attachments" tab

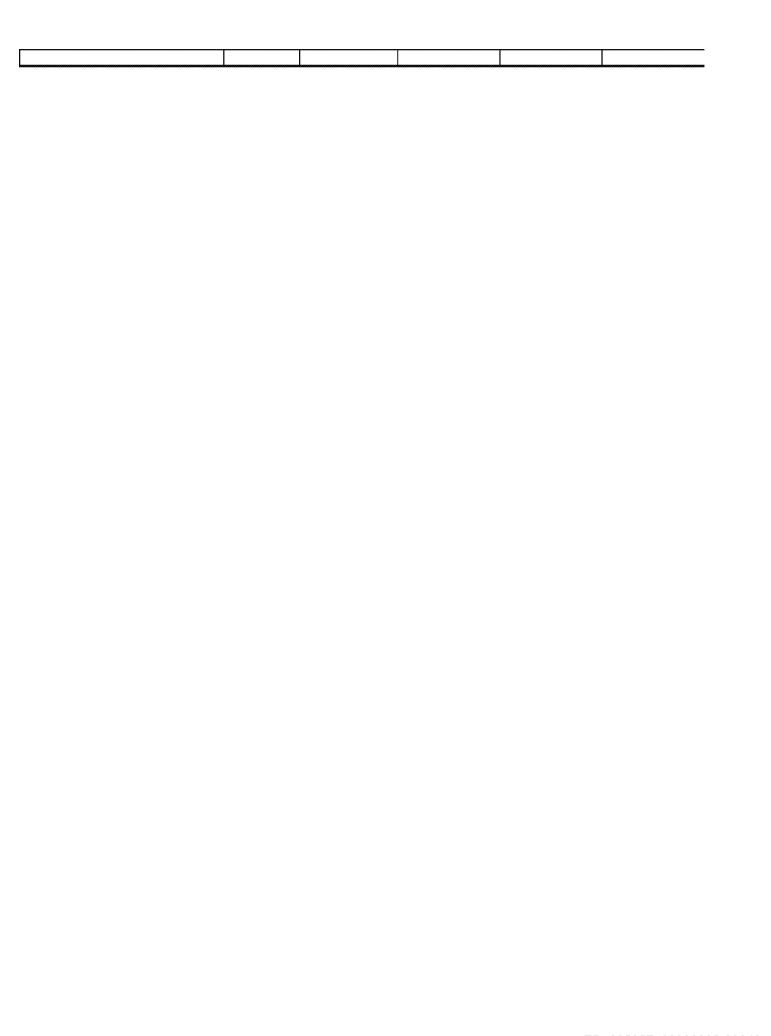


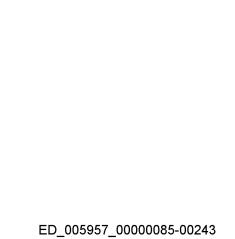


















Ethylene Oxide (EtO) Commercial Sterilization CAA Section 114 Survey

Click here to return to Introduction tab Click here to visit Terms tab Click here to visit Additional Info tab

I. EtO Monitoring

Table 1. Personal Monitoring (Badges) for EtO

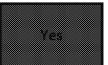
List all personal monitoring events during the last 5 years

Field #	l-1	1-2	1-3
Data	Unique ID	Date	Description of Work Conditions
Instruction	Enter from test report or documentation, if available. Otherwise, use a unique identifier for each personal monitoring event	Enter date of the personal monitoring event (mm/dd/yyyy)	Provide a brief description of the work conditions of facility during each personal monitoring event
Response	T-1		
	T-2		
	T-3		
	T-4		
	T-5		
	T-6		
	T-7 T-8		
	T-9		
	T-10		
	1-10		

Table 2. Room Area Monitoring for EtO

Field #	B-1	I-9	
Data	Room area ID for all rooms and areas where EtO is used or emitted	Description of room area monitoring	EtO concentration
Instruction	This column will be auto-populated based on your entries in the previous fields	Provide a brief description of the monitoring procedure for each room	Enter the <u>average</u> EtO concentration (ppmv)

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right → If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document



	1-4		I-5	I-6		
	Monitoring res	ult	Monitoring result flag	Averaging periods		
Enter the average concentration monitored (ppm)	Enter the maximum concentration monitored (ppm)	Enter the minimum concentration monitored (ppm)	Specify any action level, error, or flag of monitoring result	Specify any averaging periods for each personal monitoring event		

l-10		I-11	I-12	I-13
of room area w emitted	rhere EtO is used or	How many measurement points are there within the room area?	What is the frequency of monitoring at each point within the room area?	Instrum
Enter the maximum EtO concentration (ppmv)	Enter the <u>minimum</u> EtO concentration (ppmv)		Specify the frequency of monitoring at each point within the room area	Specify the instrument used to monitor the room area

	1-7		I-8
Instrument 1			Instrument 2 (if any
Specify the instrument used during each personal monitoring event	Enter the <u>value</u> of detection level of instrument	Specify the <u>unit</u> of detection level of instrument	Specify the instrument used during each personal monitoring event
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	
Ethylene oxide is collected on a	0.01	ppm	

į.			I-14	
ent 1			Instrument 2 (if any)	
Enter the value of	Specify the unit of	Specify the instrument used to	Enter the value of	Specify the <u>unit</u> of detection level of
detection level of	detection level of	monitor the room area	detection level of	instrument
instrument	instrument		instrument	

Enter the <u>value</u> of detection level of instrument	Specify the <u>unit</u> of detection level of instrument
***************************************	***************************************
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	***************************************
***************************************	
***************************************	***************************************

I-15
Action levels and
SOPs for room area
monitoring

Provide documents specifying action levels and SOPs for room area monitoring

Response	EO Room	Gas chromatograph and LEL monitoring	
	Chamber 1	Gas chromatograph and LEL monitoring	
	Chamber 2	Gas chromatograph and LEL monitoring	
	Chamber 3	Gas chromatograph and LEL monitoring	
	Chamber 4	Gas chromatograph and LEL monitoring	
	Chamber 5	Gas chromatograph and LEL monitoring	
	Chamber 6	Gas chromatograph and LEL monitoring	
	Chamber 7	Gas chromatograph and LEL monitoring	
	Chamber 8	Gas chromatograph and LEL monitoring	
	Chamber 9	Gas chromatograph and LEL monitoring	
	Chamber 10	Gas chromatograph and LEL monitoring	
	Vacuum Pump Room	Gas chromatograph and LEL monitoring	
	Warehouse	Gas chromatograph and LEL monitoring	
	Emissions Room	Gas chromatograph and LEL monitoring	
	Safe Cell		
	1		

## Table 3. Other Monitoring for EtO

Field #	Data	
l-16	Describe any other types of EtO monitoring that have been	
I-17	Describe any dispersion modeling efforts conducted by the	
	facility	
I-18	Provide the records for any type of monitoring or modeling	Attach all

1	every 45 minutes	Mocon-Baseline 8900 Series Gas
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System
1	every 45 minutes	Mocon-Baseline 8900 Series Gas
		Chromatograph System

	Response				
juested c	locuments in th	e "Attachme	ints" tab		

0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit
0.04	ppm	GFG MWG 0238 Ex	0%	percent of lower explosive limit



LIKK DERE TO REDUCT TO MITODUCTION TOO	

### J. Wastewater

Field #	J-1	J-2		J-3	J-4	
Data	Daily average wastewater flow rate for EtO commercial sterilization activities at the facility	Annual EtO er wastewater at fac yea	ility for the last 5	Average EtO concentration in wastewater when it leaves the vacuum pump or liquid-gas separator	Average EtO concentration in wastewater when collected in a holding tank or basin	Wastewater disp
Instruction	(gallons/day)	Enter <u>calendar year</u> in this column	Enter the <u>value</u> of annual EtO emissions in this column (pounds)	(ppmv)	(ppmv)	Briefly specify how EtO commercial ste
Response	0.14					

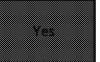
# K. Unique Cycles and EtO Reduction

Enter data for each individual category, respectively

If the facility does not plan to re-validate cycles in an effort to reduce EtO use, responses are not required for Fields K-2 through K-4 and K-7 i

Field #	K-1	K-2	K-3	K	-4
Data	How many unique	How many	How many unique	How long will it to	ike to complete re-
	cycles are run at	unique cycles	cycles does the	validation of	these cycles?
	this facility?	have been re-	facility still have		
		validated thus	left to re-validate		
		far?			
Instruction	Enter the amount	Enter the amount	Enter the amount	Enter the <u>value</u> in	Specify the <u>unit</u> in
	of unique cycles	of unique cycles	of unique cycles	this column	this column
Response for all the products in total	7	7	7	3.00	years
Response for 510(k) products (Class I and Class II devices)					
Response for Pre-Market Approval (PMA) products (Class III devices)					

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right → If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document



J-5	J-	6	J-7	J-8
iosal or treatment for EtO commercial sterilization activities	•	ost of wastewater atment for EtO lization activities	Are there any other processes within the facility that generate EtO-laden wastewater?	the facility
wastewater is disposed of or treated for rilization activities	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column		List all other processes generating EtO-la within the facility. Enter one process per
			No (skip to J-12)	

#### through K-13

:mougn K-13			
K-5	K-6	K-7	K-
Cost of validating unique cycles	What is the current average EtO dose among the products?	What is the target average EtO dose?	What is the anticipa change in <u>number and</u> upon completion of
Provide information on the cost to validate a sterilization cycle, including: (1) hours of time for R&D engineers, operators, technicians, etc. to complete the sterilization cycle runs, compile the reports and file with the FDA; (2) costs for laboratory analyses; and (3) information on the length of time from start to finish (weeks) required to complete validation for a sterilization cycle	(mg/L)	(mg/L)	(percent)
Revalidating sterilization cycles will be largely dependent on the customer.  Different types of medical products require different amounts of studies, types of laboratory analysis, various regulatory lead times, etc. The hours of			

	J-9	J-10	J-1	.1
wastewater within	Daily average wastewater flow rate for each process other than EtO commercial sterilization	Wastewater disposal or treatment for each process other than EtO commercial sterilization	Annual cost of wa or treatment for e than EtO comme	ach process other
den wastewater each row	(gallons/day)	For each process, briefly specify how wastewater is disposed of or treated	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column

8	<b>K</b> -9	K-10	K-11
ted average percent of nitrogen washes the re-validations?	What is the anticipated average percent change in <u>number of air washes</u> upon completion of the re-validations?	What is the anticipated average percent change in time spent on gas washing upon completion of the re-validations?	What is the anticipated average percent change in <u>dwell period time</u> upon completion of the revalidations?
	(percent)	(percent)	(percent)

	J-12
	Annual average
	wastewater flow
fi	or <u>all operations</u> a
	the facility
(	includes both EtO
	commercial
	sterilization and
	other activities)
Ļ	
(8	çallons/year)
	51.10
	31.10

K-12	K-13 What are the anticipated annual cost savings from reduced EtO use?		
What is the anticipated average percent change in <u>aeration time</u> upon completion of the re-validations?			
(percent)	Enter the dollar amount in this column	Specify the dollar <u>year</u> in this column	

# L. Other Questions regarding EtO Commercial Sterilization

Field #	Data	
L-1	How is EtO handled during malfunction events of process equipment (vented,	Chambers are under vacuum. Vacuum ;
L-2	How is EtO handled during malfunction events of APCD (vented, held within	Held within chamber.
L-3	Provide documentation of any studies done on quantifying EtO residuals in	Attach all
L-4	Are there generators on site to keep facility running in the event of a power	Generator is only able to power emerge
L-5	Provide percent emission reduction, associated costs, and description of	MSC has continuously worked to revalid
L-6	Is the facility operating at full capacity or can current capacity increase to	We are operating at full capacity.

### Response

pumps will activate prior to reaching atmospheric pressure and the gas will be

requested documents in the "Attachments" tab

ncy lighting, telephones, biological indicator storage room, and incubator. ate sterilization cycles to reduce the amount of ethylene oxide remaining in





Click here to return to Introduction tab Click here to visit Terms tab

# M. Additional Information

If you need extra space to provide any additional information within this survey, use this section below. For each entry, spe

ce to proviae any a	idditional information within this survey, use this section below. For each entry, spe
Field #	
A43	This is the electric and gas costs for the facility summed over the last 5 years divid-
A44	This is the sterilization sales for the facility summed over the last 5 years divided b
C2	Amount that can be stored at once
E10	These are all negative pressure (the pressure below atmospheric pressure), howev
E75	The control software we use will not allow the cycle to finish without first going th
G4	This system was added onto going from once tower to two towers in parallel
B12 to B20	While air is not forced into any of the NDOs, the entire facility is kept under a vacu
B59	These are all square exhaust openings, with the listed diameter being the length o
E52	There is only one wet scrubbing system currently at this facility, however, this syst
G20	this monitoring has not been implemented yet, however will be soon
All	We are using the supplemental spreadsheet for the aeration room, however, we h
K-2 through K-3	Midwest Sterilization has continuously worked to revalidate cycle for lower ethyle
E96	Back vents were always in place. They were hooked up to an air pollution control (
B8	This is not something that is monitored and we do not have sufficient equipment 1
B12 through B21	Air is not forced through any of the natural draft openings with a fan, however, the
B7	These are all estimates bases on the available information
D7 and D8	These are estimates of current pricing for these tanks, these specific tanks were in
~~~~~	This is not a direct measurement, however, is a calculated estimate
C14	This is not a direct measurement, nowever, is a calculated estimate
E15	We do not rack this data or have an appropriate method to measure/calculate an
E17	This is not a direct measurement, however, is a calculated estimate
E18	We do not track this data or have an appropriate method to measure/calculate an
E19	We do not track this data or have an appropriate method to measure/calculate an
E20	We do not track this data or have an appropriate method to measure/calculate an
E25	These are all estimates bases on the available information
E52	We do not monitor these airflow amounts so this is a calculated estimate from the
E67	These are all estimates bases on the available information
E68	These are all estimates bases on the available information
E69	These are all estimates bases on the available information
E97	These are all estimates bases on the available information
	1
	Field # A43 A44 C2 E10 E75 G4 B12 to B20 B59 E52 G20 All K-2 through K-3 E96 B8 B12 through B21 B7 D7 and D8 E14 E15 E17 E18 E19 E20 E25 E52 E67 E68 E69

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right → If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document

No

Response ed by 5. The dollar year amounts are 2015 to 2019 y 5. The dollar year amounts are 2015 to 2019 ver, this spreadsheet will not let you put in a negative sign irough all of the cycle's washes if ethylene oxide has been introduced into the chamber. rum so the vacuum pressure of the facility will pull air through all of these openings towards the various exhaust fans f the sides em consists of two packed towers. Each of these towers has its own identifier as listed in our operating permit ad to fill this section out so that the APCD IDs would auto populate on the APCD summary and the APCD Details Pages ne oxide emissions, however, we are always working to continuously revalidate them and reduce emissions even further device last year to properly record it e facility is kept under a slight vacuum so air will be constantly pulled through these openings stalled many years ago and records for pricing are not available accurate amount y amount that is accurate y amount that is accurate y amount that is accurate available information per sterilization chamber

ecify the tab name and field number to which your answer refers

Sterilizer Chambers	E99	All sterilization chambers were completed at once, this is an estimate of the cost p
Aeration	F26	All of the aeration rooms are routed to the same control device and share sections
Aeration	F37	These are all estimates bases on the available information
Aeration	F38	These are all estimates bases on the available information
Aeration	F39	These are all estimates bases on the available information
APCD Summary	G9	These are all estimates bases on the available information
APCD Summary	G19	WS-1 is not continuously monitored for ethylene oxide emissions rates
Miscellaneous	J2	This information is kept by the wastewater treatment company
Miscellaneous	J3	This information is kept by the wastewater treatment company
Miscellaneous	J4	This information is kept by the wastewater treatment company

er sterilization chamber
of the duct work. This is the total amount of duct work divided by the amount of aeration rooms. Summing this column would

N. Attachments

Instructions: Attach all documents and records requested throughout this survey on this page. Corresponding field numbers and data descriptions are summarized in the table below. Ensure that any IDs referenced are consistent with data reported in this survey Ω × Steps to attach files to this Excel spreadsheet (1) Click on the field to attach files; (2) Go to the Insert tab \rightarrow Text, click Object; IA (3) In the Object dialog box, click the Create from File tab; (4) Click Browse, and select the file you want to insert; Text : Header WoodArt Signal Make York Kenney (5) Select the Display as Icon check box, then click OK.

Field #	Data	Instruction	
A-21	Facility diagrams	Provide diagrams of your facility indicating all rooms,	
A-22	Process flow diagrams	Provide process flow diagrams of the EtO processes at your	
A-23	Most Recent Air Permit(s)	Provide the most recent air permit(s) approved for your	
A-24	Application Documents for the Most	Provide the application documents for the most recent air	
A-25	Startup, shutdown and malfunction	Provide the startup, shutdown and malfunction (SSM) plan	
A-42	Documentation for annual emissions	Provide calculations and supporting documentation for all	
G-17	Performance test performed in the last	Provide a copy of each performance test performed in the	
G-28	Engineering emission test performed in	Provide a copy of each engineering emission test performed	
H-11	Monitoring records for wet scrubber	Provide all monitoring records from the last calendar year	
H-29	Monitoring records for dry-bed	Provide all monitoring records from the last calendar year	
H-49	Monitoring records for catalytic oxidizer	Provide all monitoring records from the last calendar year	
H-52	Operating temperature records for	Provide the operating temperature records for thermal	
H-60	Monitoring records for thermal oxidizer	Provide all monitoring records from the last calendar year	
H-67	Monitoring records for APCD from the	Provide all monitoring records from the last calendar year	
I-15	Action levels and SOPs for room area	Provide documents specifying action levels and SOPs for	
I-18	Provide the records for any type of		
L-3	Provide documentation of any studies		
N-1	Provide any process and		000000000000000000000000000000000000000

Does any of the information you entered in this tab contain confidential business information (CBI)? Select from the options in Cell N2 on the right → If yes, be sure to shade the fields containing CBI in red, and follow the instructions specified in the Instructions Document

You may also elect to submit the documents and records requested throughout this survey through mail, email or other media (e.g., CD, DVD or thumb drive). See "Submitting Completed Surveys" section in the Introduction tab for instructions

ATTENTION - If any of the documents and records you choose to submit contains confidential business information (CBI), be sure to shade the corresponding fields in red and follow the instructions specified in the Instructions Document on how to handle and transport CBI

	Att	achments			

***************************************			***************************************	***************************************	
***************************************			***************************************	***************************************	

Click here to return to Introduction tab

Certification by Reporter

Complete the fields below for the person who completes the survey and who is available for follow-up questions, if any, on the information provided in this survey

Name	Eric Sisk
Title	Director of Operations
Organization	Midwest Sterilization Corp
Email	erics@midweststerilization.com
Phone	573.243.8456
Fax	573.243.3799
General comments	

I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete.

Eric Sisk

Signature

2/6/2020

Date

Certification by Professional Engineer

Complete the fields below for the professional engineer (PE) who certifies the information provided in this survey

I certify that the statements and information are to the best of my knowledge

Certification by

Please complete the this survey (may be

Г	Name
	Title
	Organization
	Email
	Phone
	Fax
G	eneral comments



Certification by

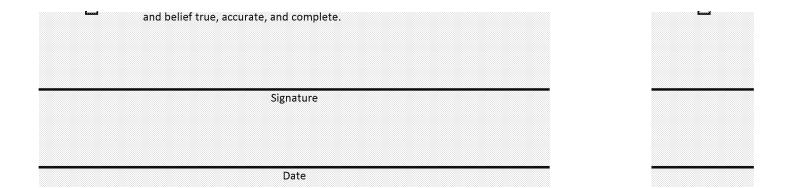
Complete the fields I provided in this surv

0000000000000000000000000000000000000
Name
Title
Organization
Email
Phone
Fax
General comments

Midwest Sterilization Corp karenf@midweststerilization.com 573.243.8456 573.243.3799 I certify that the statements and information are to the best of my knowledg and belief true, accurate, and complete. Karen E. Fitzpatrick Signature 2/6/2020 Date	Karen E. Fitzpatrick	
I certify that the statements and information are to the best of my knowledg and belief true, accurate, and complete. Karen E. Fitzpatrick Signature 2/6/2020 Date	President	
573.243.8456 573.243.3799 I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. Karen E. Fitzpatrick Signature 2/6/2020 Date	Midwest Sterilization Corp	
I certify that the statements and information are to the best of my knowledg and belief true, accurate, and complete. Karen E. Fitzpatrick Signature 2/6/2020 Date	karenf@midweststerilization.com	
I certify that the statements and information are to the best of my knowledg and belief true, accurate, and complete. Karen E. Fitzpatrick Signature 2/6/2020 Date	573.243.8456	
and belief true, accurate, and complete. Karen E. Fitzpatrick Signature 2/6/2020 Date	573.243.3799	
Signature 2/6/2020 Date		tion are to the best of my knowledge
2/6/2020 Date	Karen E. Fitzpat	rick
Date	Signature	
	2/6/2020	
Certified Industrial Hygienist	Date	
Certified Industrial Hygienist		
	Certified Industrial Hygienist	
pelow for the certified industrial hygienist (CIH) who certifies the information ey		t (CIH) who certifies the information
	ey	

I certify that the statements and information are to the best of my knowledge

Facility Personnel



and belief true, accurate,	and complete.	
	Signature	
	Date	

A-5 & A-16	Δ-9	B-2
AK	≤ 100	EtO storage
AZ	101-250	Preconditioning
AR	251-500	EtO dispensing room
CA	> 500	Sterilizer room area
co		Aeration room area
СТ	A-10	Aeration room
DE	Operating	Shipping or warehouse
DC	Seasonal/partial year	APCD room
FL	Temporarily closed	Other (double click to specify)
GA	Permanently closed	
ні	•	B-22
ID	A-12	Yes
IL	Yes	No (skip to B-38)
IN	No (skip to A-13)	
IA	, ,	B-23
KS	A-19	Valve - gas
KY	Yes	Valve - liquid
LA	No	Connector
ME		Flange - gas
MD	A-20	Flange - liquid
MA	≤ 250	Pump seal - liquid
MI	251-500	Pressure relief device
MN	501-750	Meter - gas
MS	751-1000	Meter - liquid
МО	1001-1250	Line
MT	> 1250	Other (double click to specify)
NE		
NV		B-36
NH		Yes
NJ		No (skip to B-37)
NM		
NY		B-37
NC		Yes
ND		No (skip to B-38)
ОН		
ОК		B-38
OR		APCD (fill out B-39 through B-56)
PA		Cascading (fill out B-57)
RI		Atmosphere (fill out B-58 through B-60)
SC		Other handling (fill out B-61)
SD		
TN		B-45
TX		Circular (fill out B-46 & B-50 as appropriate)
UT		Rectangular (fill out B-47/48 & B-51/52 as appropriate)
VT		
VA		B-49
WA		Yes (skip to B-53)
WV		No (fill out respective fields)
WI		
WY		
AS		
GU		
MH		
FM		
MP		
PW		
PR		
VI		

NDO Type	C-3	СВІ
Door	Yes	Yes
Window	No (skip to C-5)	No
Other (double click to specify)		
	C-7	
NDO Orientation	Yes	
Vertical	No (skip to C-9)	
Horizontal		
Combined	C-11	
	Yes	
Air forced out of NDO Yes	No	
No (skip the next column)	D-10	
	Yes (fill out D-11 through D-27)	
	No (fill out D-28 through D-30)	
	D-16	
	Circular (fill out D-17 & D-21 as appropriate)	
	Rectangular (fill out D-18/19 & D-22/23 as appropriate)	

Yes (skip to D-24) No (fill out respective fields)

D-20

E-3/E-4/E-5/E-11 Yes No E-21 Yes No (skip to E-29) E-29 Yes No (skip to E-37) E-38 ppm % LEL E-40 Yes No (skip to E-51) E-41 Yes No (skip to E-45) E-51 Yes (fill out E-52 through E-69) No (fill out E-70 through E-72) E-58 Circular (fill out E-59 & E-63 as appropriate) Rectangular (fill out E-60/61 & E-64/65 as appropriate) E-62 Yes (skip to E-66) No (fill out respective fields) E-73 Yes No (skip to E-111) E-74 Yes No (skip to E-75) E-75 No (skip to E-81) E-81 Yes (fill out E-82 through E-107) No (fill out E-108 through E-110) Circular (fill out E-89 & E-93 as appropriate) Rectangular (fill out E-90/91 & E-94/95 as appropriate) E-92

Yes (skip to E-96)

No (fill out respective fields)

APCDWet scrubber

Glygen absorber unit Dry-bed scrubber

Catalytic oxidizer

Thermal oxidizer

Balancer/abator

Other (double click to specify)

F-3	G-16	H-17	J-7
Aeration room	Yes	Yes	Yes
Aeration cell/chamber	No	No (skip to H-20)	No (skip to J-12)
F-4	G-20	H-22	
Yes	Yes	Yes	
No (skip to F-6)	No (skip to G-28)	No (skip to H-23)	
F-5		H-23	
Pull vacuum		Yes	
Multiple inlet and outlet vents on cell		No (double click to specify)	
Other (double click to specify)			
		H-39	
F-8		Yes	
Yes		No (skip to H-42)	

Circular (fill out F-29 & F-33 as appropriate) Rectangular (fill out F-30/31 & F-34/35 as appropriate)

F-32 Yes (skip to F-36) No (fill out respective fields)

F-44 Yes		
No (skip to	5)	

F_N	E-1	APCD ID	APCD Type	000000000000000000000000000000000000000	000000000000000000000000000000000000000	G-1 with dune	G-1 with no dups
No	Chamber 1	0	U. CD : Abe	0	B-39	WS-1	G-1 with no dups
No	Chamber 2	o O	0	0		WS-1	
No	Chamber 3	0	0	0		WS-1	
No	Chamber 4	0	0	0		WS-1	
No	Chamber 5	0	0	0		WS-1	
No	Chamber 6	0	0	0		WS-1	
No	Chamber 7	0	0	0		WS-1	
No	Chamber 8	0	0	0		WS-1	
No	Chamber 9	0	0	0		WS-1	
No		0	0	0		WS-1	WS-1
0	0	0	0	0		SC-2	
0	0	0	0	0		SC-2 SC-2	
0	0	0 0	0	0		SC-2 SC-2	
0	0	0	0	0		SC-2 SC-2	
0	0	0	0	0		SC-2	
0	0	o O	0	0		SC-2	
0	0	0	0	0		SC-2	SC-2
0	0	0	0	0		SC-3	
0	0	0	0	0		SC-3	SC-3
0	0	0	0	0	B-40	SC-1	SC-1
0	0	0	0	0			
0	0	0	0	0			
0	0	0	0	0			
0	0	0	0	0			
0	0	0	0	0			
0	0	0	0	0			
0	0	0	0	0			
0	0	0 0	0	0			
v	U	0	0	0			
		o O	0	0			
		o O	0	0			
		o	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0	B-41		
		0	0	0			
		0	0	0			
		0 0	0	0 0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		o O	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			
		0	0	0			

	APCD Type	APCD Details (AM)	B-1	B-1 with no 0	Additional Info
WS-1	Wet scrubber	WS-1	EO Room	EO Room	Facility Details
SC-2	Dry-bed scrubber	SC-2	Chamber 1	Chamber 1	Room Area
SC-3	Dry-bed scrubber	SC-3	Chamber 2	Chamber 2	EtO&EG Storage
SC-1	Dry-bed scrubber	SC-1	Chamber 3	Chamber 3	Sterilizer Chambers
			Chamber 4	Chamber 4	Aeration
			Chamber 5 Chamber 6	Chamber 5 Chamber 6	APCD Summary APCD Details
			Chamber 6 Chamber 7	Chamber 6 Chamber 7	EtO Monitoring
			Chamber 8	Chamber 8	Miscellaneous
			Chamber 9	Chamber 9	Attachments
			Chamber 10	Chamber 10	Certification
			Vacuum Pump Room	Vacuum Pump Room	
			Warehouse	Warehouse	
			Emissions Room	Emissions Room	
			Safe Cell	Safe Cell	
			o o		
			0		
			0		
			0		



E-100 Yes (fill out E-107) No

E-101

Yes

No (skip to E-111)

E-111

Yes No (skip to E-133)

E-112

Yes (fill out E-113 through E-129) No (fill out E-130 through E-132)

E-118

Circular (fill out E-119 & E-123 as appropriate)
Rectangular (fill out E-120/121 & E-124/125 as appropriate)

E-122

Yes (skip to E-126) No (fill out respective fields)

E-133

Yes (fill out E-134 through E-143) No (skip to F-1)

E-136

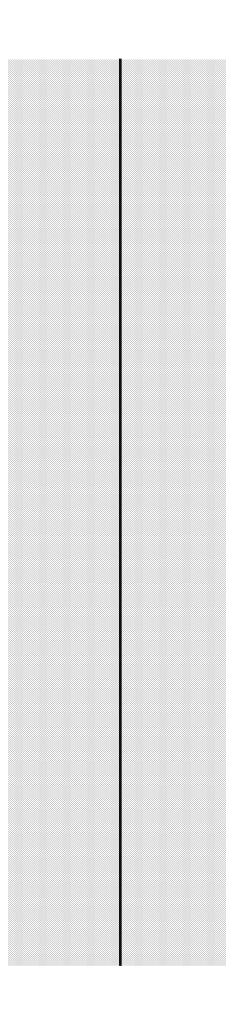
Once-through Recirculating Other (double click to specify)

E-137

Wet seal with water Wet seal with oil Wet seal with other fluid Dry seal Other (double click to specify)

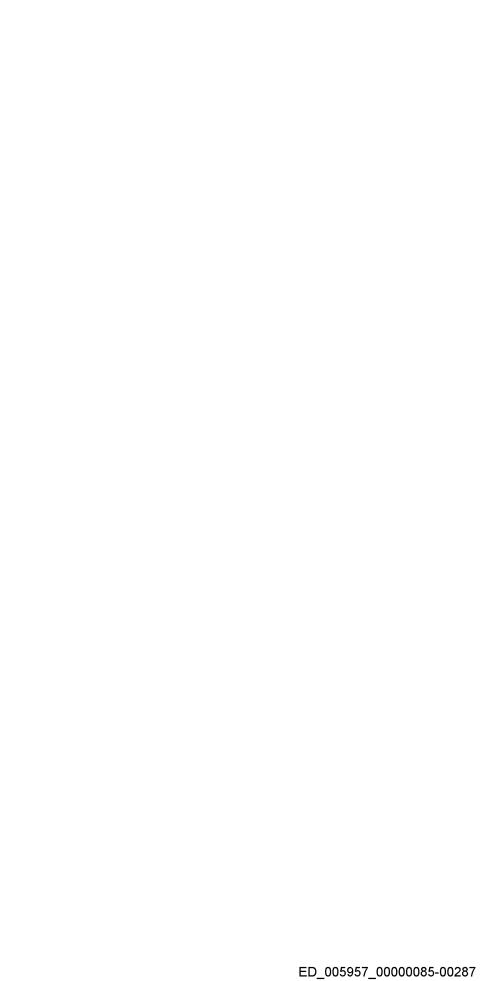


1			ı	
0	0	0		
0	0	0 0	D-11	
0	0	0	D-31	
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
Ö	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0	D-12	
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
o O	0	0		
0	0	0		
WS-1	Wet scrubber	WS-1	E-52	
WS-1	Wet scrubber	WS-1		
WS-1	Wet scrubber	WS-1		
WS-1	Wet scrubber	WS-1		
WS-1	Wet scrubber	WS-1		
WS-1	Wet scrubber	WS-1		
WS-1	Wet scrubber	WS-1		
WS-1	Wet scrubber	WS-1		
WS-1	Wet scrubber	WS-1		
WS-1	Wet scrubber	WS-1		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		



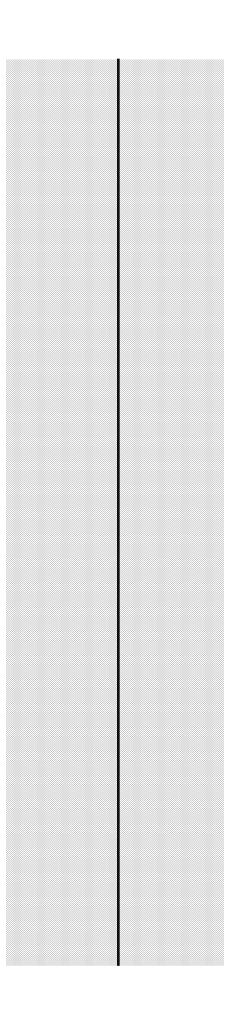








0	0	^	ı	
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0	e es	
0 0	0	0	E-53	
0	0	0		
0	0	0		
o O	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0		
0	0	0		
0	0	0		
o O	Ö	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0 0		
0	0	0		
0	0	0		
0	0	0		
0	0	0	E-54	
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0 0		
0	0	0		
0	0	0		
0	0	0		
o O	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		



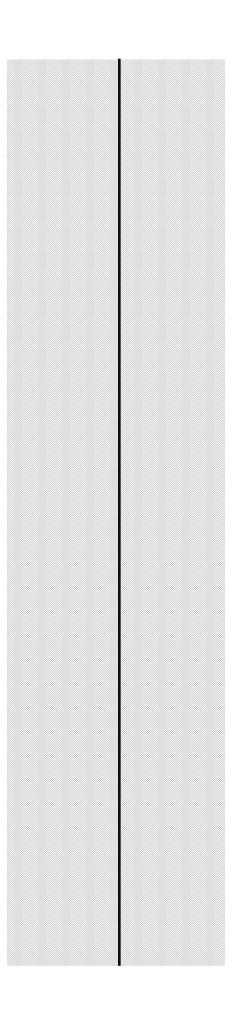




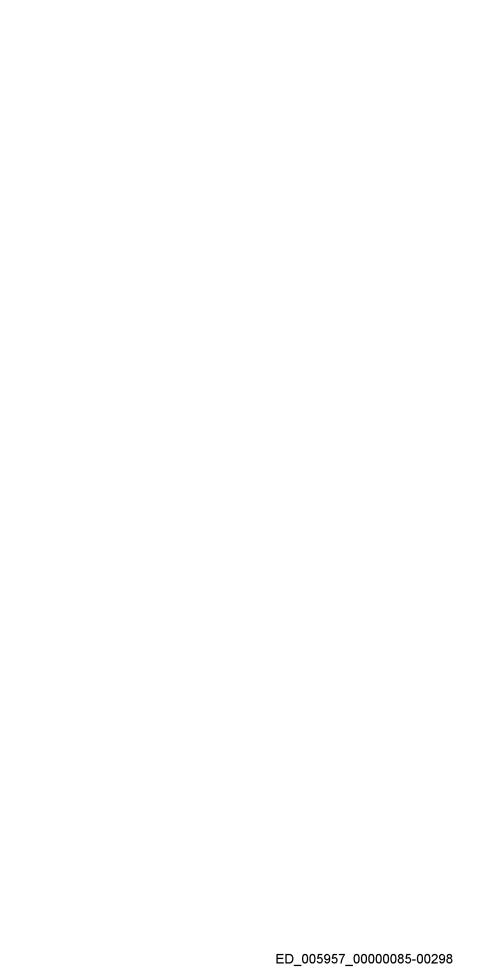




l.			ı	•
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 SC-2	0	0	E 00	
	Dry-bed scrubber	SC-2	E-82	
SC-2 SC-2	Dry-bed scrubber Dry-bed scrubber	SC-2 SC-2		
SC-2 SC-2	Dry-bed scrubber	SC-2		
SC-2				
SC-2	Dry-bed scrubber Dry-bed scrubber	SC-2 SC-2		
SC-2	Dry-bed scrubber	SC-2 SC-2		
SC-2	Dry-bed scrubber	SC-2		
SC-2 SC-3	Dry-bed scrubber	SC-3		
SC-3	Dry-bed scrubber	SC-3		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
o O	0	0		
0	0	0		
0	0	0		
o O	0	0		
0	0	0		
0	0	0		
o O	0	0		
Ö	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0	E-83	
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		



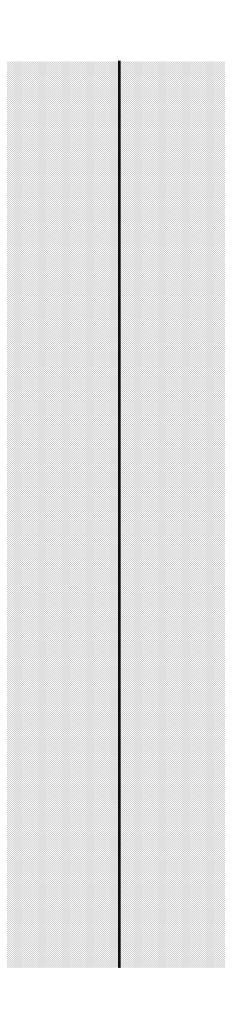








0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0		
	0000000000000	0 0 0 0 0 0 0 0 0 0 0	E-84	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0 0 0 0	E-113	
0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0		



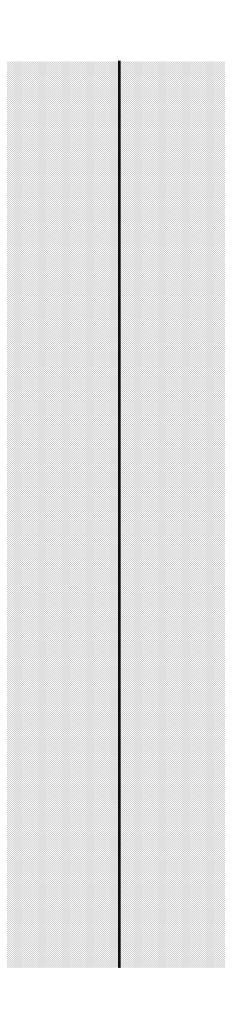








О	0	0		1
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0 0	E-114	
0	0	0	F.174	
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0 0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0		
0	0	0 0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0		
0	0	0 0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
SC-1	Dry-bed scrubber	SC-1	F-23	
0 0	0	0 0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0	0	0		
0 0	0	0 0		
0	0	0		
I~	-	~		











0	0	0	
	0	0	
0 0 0 0 0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	F-24
0 0 0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0 0 0 0 0 0 0 0 0 0 0	0	0	
	0	0	
0	0	0	
0 0 0	0	0	
0	0	0	
0 0 0	0	0	
0	0	0	
0	0	0	

